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NUCLEAR PROLIFERATION AND LATIN AMERICAN SECURITY: IS THE "BOMB" PROGRAM DEAD IN BRAZIL?

by

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This thesis illustrates that Brazil maintains a hidden agenda in order to support one of the most advanced nuclear research and nuclear power programs in Latin America. From the early 1970s to the late 1980s Brazilian military leaders pursued the development of nuclear weapons. With the emergence of democratic regimes during the 1980s, these covert projects were halted or terminated. The civilian administration in Brazil is now supporting an ambiguous and uncompromising position by not ratifying significant agreements renouncing the research of nuclear weapons programs.

With Brazil still rejecting the Non-proliferation Treaty (NPT), not formally embracing the Tlatelolco Treaty(that prohibits nuclear weapons in Latin America), and not allowing full implementation of inspections and International Atomic Energy Association (IAEA) Safeguards on nuclear facilities, the future of the Brazilian nuclear program appears to be a dormant but potential factor in Brazilian foreign policy.

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Nuclear Proliferation and Latin American Security:
Is the "Bomb" Program Dead in Brazil?

by

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of the requirements for the degree of

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ABSTRACT

This thesis addresses the possibility of a Brazilian "hidden agenda" in order to support one of the most advanced nuclear research and nuclear power programs in Latin America. From the early 1970s to the late 1980s Brazilian military leaders pursued the development of nuclear weapons. With the emergence of democratic regimes during the 1980s, these covert projects were halted or terminated. The civilian administration in Brazil is now supporting an ambiguous and uncompromising position by not ratifying significant agreements renouncing nuclear weapons programs.

With Brazil still rejecting the Non-Proliferation Treaty (NPT), not formally embracing the Tlatelolco Treaty(which prohibits nuclear weapons in Latin America), and not allowing full implementation of inspections and International Atomic Energy Association (IAEA) Safeguards on its nuclear facilities, the future of the Brazilian nuclear program appears to be a dormant but potential political factor in Brazilian foreign policy.

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EXECUTIVE SUMMARY

The issue of nuclear proliferation and weapons of mass destruction were given a new sense of urgency due to the new balance of power imposed by the disintegration of the communist bloc. A "New World Order" is drastically affecting the dynamics of nuclear development and the strategic political equations that great powers must deal with. The possibility of acquisition of weapons of mass destruction by a developing country or a "non-aligned" nation is keeping the non-proliferation regimes on a continuous alert, looking for potential offenders. The purpose of this thesis is to examine the case of a developing nation in Latin America(Brazil), that has had an active and advanced nuclear weapons program. The logic is to review the current "status quo" and ambiguous policies that the Brazilian authorities are following in matters concerning nonproliferation legislation and technological autonomy requirements. This thesis identifies five determinants and how they are affecting the outcome of any decision, made by the leadership in Brazil, related to the nuclear power and weapons program in Brazil.

This thesis addresses the following questions:

(1) Is Brazil facing a dilemma of deciding whether to cancel its aspirations for a nuclear weapons arsenal or to renounce to this goal and join the international non-proliferation regimes?

The leaders of the Brazilian government must consider

military pressure over issues of sovereignty, national security and development, technological autonomy and "geopolitical prestige" before any substantial decision can be taken to achieve consensus and keep the civilian government organization together.

(2) Is there a military resurgence in Brazilian politics?

A military resurgence can be a catalytic factor for the development of nuclear programs via a parallel program in Brazil. Several institutional factors like the Doctrine of National Security and Development, territorial control concerns, military superiority issues, technological autonomy, geopolitical considerations, and organizational prestige appears to legitimize the military ambition to have the technological know-how to develop a nuclear weapon.

(3) What is the relationship between the Brazilian and the Argentine nuclear programs?

Past geopolitical considerations and fears of military conflict initiated an arms race between the two countries. Even when the relationship between the governments of Brazil and Argentine are cordial, many diplomatic issues and disputes over land, and past military conflicts are resented by both nations military leaders.

(4) What economic considerations must be addressed by prospective nuclear nations in their aspirations to develop a nuclear power and nuclear weapons program?

Nuclear power ambition is a very costly one. The finance of nuclear power programs and acquisition of the related

technologies require enormous amounts of capital that must be obtain prior to engage in any nuclear weapons research. In the case of Brazil, the financing of its nuclear power program and acquisition of associated technologies is being achieved through foreign investment and loans from several nations like Germany and France and through revenues that the indigenous military arms industry may generate.

This thesis examines how and why a developing nation may use its nuclear power program to develop nuclear weapons. Using a single case of Brazil, this analysis looks for the contingencies to governmental policies in order to help in the understanding of higher order consequences of change in the process being described. It identifies and analyses five determinants of the nuclear sector in Brazil and explains the contributing factors that are involved in each of these issue areas. The basic proposition of this analysis argues that Brazil has a "hidden agenda" behind its reluctance to assume a clear and direct approach to nuclear demands from the nonproliferation regimes: to further its technological autonomy strategy and maintain the potential of "having the bomb as a bargain chip" to keep Brazil in the frontlines of international considerations.

It concludes that:

(1) Brazil continues to exhibit an ambiguous position in matters concerning the nuclear power sector because it is the best interest of Brazilian politicians not to deal with issues of technological autonomy, national sovereignty, and developmental

strategy imposed from outside actors when Congressional and governmental crises are encouraging many to believe that a military intervention is the best solution to Brazil's problems. The civilian and military leaders in Brazil have understood that having the potential of quick development of the nuclear device could be as powerful in the international agenda as having the device itself.

(2) The nuclear reassessment between the Argentine and Brazilian government and the nonproliferation regimes are good ways to control nuclear proliferation in both countries, but these efforts can be bypassed by covert programs in order to satisfy geopolitical needs or domestic considerations.

(3) The military influence in Brazil's political arena appears to be increasing as the economic situation narrows the viable alternatives to the current socioeconomic crisis and corruption scandals weaken the civilian leadership.

(4) Brazil has determined to continue with its nuclear power program without renouncing to principles of technological autonomy and national sovereignty for delicate issues like the potential of nuclear weapons development.

I. INTRODUCTION

Brazil maintains one of the most advanced nuclear research and nuclear power programs in Latin America. Its atomic bomb program has been the most denied project of the past 30 years according to the former Navy minister in the Figueiredo administration, Maximiliano Da Fonseca.[1] The program itself has symbolized, for most military leaders, an example of the great technological and military potential of the nation. This immense republic(current Constitution promulgated October 5, 1988) occupies nearly half of the South American continent. After a period of unconditional agreement and political compromise the civilian government was implicated in a corruption scandal that surfaced immediately prior to the June 1992 Earth Summit, which some characterized as a fortuitous magnet that drew attention away from the President's problems. With still three years of his term ahead of him, Brazilian President Fernando Collor de Mello resigned his position and vice president Itamar Augusto Cautiero Franco became president.

The implications of Collor de Mello's resignation for the Brazilian nuclear weapons program were more than

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[1] "Former Navy Minister Discusses Nuclear Bomb Production", (interview in Portuguese), Rio de Janeiro July 1993, translated and reported in FBIS(FBIS-LAT-93-148-A, 4 August 1993), pp.77-80.

significant because incomplete nonproliferation commitments and future cooperation compromises that were made by the former President were never ratified by the Brazilian government. It seems that the administration of president Franco is reviewing those commitments from a different perspective.

Brazil still rejects the Non-Proliferation Treaty (NPT) and has not formally embraced the Tlatelolco Treaty, which creates a regional nuclear-weapons-free zone in Latin America. Disturbing ambiguities persist regarding certain indigenous nuclear facilities and growing nuclear submarine and missile program. Even though Brazil and Argentina have signed a new arrangement for mutual inspections and IAEA Safeguards of nuclear facilities, the agreement has not been ratified by either nation's legislature.

Now Brazil faces the dilemma of deciding whether to cancel its aspirations for a nuclear weapon arsenal or to continue a moderate but decisive program leading towards the gradual development of a nuclear explosive device. This thesis analyzes the Brazilian nuclear program and the factors that will determine its future as part of the more encompassing national policy strategy in Brazil.

It is clear that the relevance of the nuclear issue is very important for the development of Brazil and ultimately South America because it is related to broader issues of:

(1) regional considerations- geopolitics, Southern Cone Alliance i.e. (MERCOSUR), and the environment; and

(2) global trends- non-proliferation regimes, nationalism/sovereignty issues, international arms trade, and experiments on democracy and civilian rule.

To understand the reasons behind the course of actions taken by the Brazilian government in matters concerning the development of the nuclear weapons program, this thesis considers two major questions.

The first one assumes the termination of the nuclear weapons program in Brazil. What were the factors influencing the decision to terminate the nuclear weapons program in Brazil? The assumption is that the end of the program has occurred as a result of a pragmatic decision that involved issues of:

(1) "international cost"- the cost of opposing global trends, U.S. wishes, and International Systems of Nuclear Control like the IAEA, NPT, and Tlatelolco is too high,

(2) economic stability-the current status of the Brazilian economy does not allow the high cost of nuclear weapons development,

(3) geopolitical calculation-geopolitics is now related to regional integration efforts and these issues are primary and influential elements in domestic and foreign policies of Brazil,

(4) domestic politics- economic issues have the undisputed attention and priority of lawmakers in Brazilian politics, in addition to a legislative "impasse" that appears to exists within the Brazilian government transforming congressional decisions into a "buy time" game, and

(5) military influence in politics-the Amazonian Security Initiative has replaced nuclear weapons development and weapons technology acquisition as the Brazilian military's new mission.

The second question does not eliminate the possibility of nuclear weapon development but ties it to national security policy, domestic political calculations, and the global political environment; emphasizing Brazil's role in the international stage: Is there a hidden agenda behind the reluctance of the Brazilian government to assume a concrete and clear position concerning the nuclear weapon sector in

Brazil? This hypothesis assumes that Brazil has recognized that the nuclear program can be used to reaffirm the government's position in respect to a collection of other sensitive issues:

(1) to further issues of technological autonomy that will benefit present and future programs like non-binding resolutions involving space programs, and to defend Brazil's independent position regarding high technology industries;

(2) to avoid direct confrontation with powerful nationalistic elements, within the "quasi-democratic" political system, that claim that foreign interference is affecting issues of sovereignty, the concept of "grandeza," and the role of the military in Brazilian politics; and

(3) to position Brazil in an advantageous but temporary "high visibility" zone within the international stage and world affairs.

This thesis analyzes the Brazilian nuclear option in support of a proposed argument that argues that Brazil has a hidden agenda behind its nuclear "bomb" program: To further its technological autonomy strategy and use the "potential of having the bomb as a bargain chip" as long as it is permissible and feasible in Brazil's domestic and foreign

politics. This hypothesis has numerous aspects supporting its rationale. It includes the technological autonomy "strategy" that reconciles the old military concepts with the imposition and openness of civilian rule and democratic responsibility- a willingness to compromise.

The methodology used in the research of the hypothesis is a method of matrices, indices , and contextual relations known as associational analysis. This method is used by analysts of the defense intelligence agency as a structuring technique in the analysis of political-military dilemmas. This technique helps to identify contingencies to governmental policies and aid in the understanding of higher order consequences of change in the process being described. Although associational analysis is a very useful structuring tool it should not be heavily relied upon to provide probabilistic answers to conflictual situations.

In summary, this thesis analyses five issue areas intimately related to the nuclear sector in Brazil and relates them to the possibility of a nuclear weapons reapproachment in Brazilian policy. The first three chapters (II, III and IV) are a descriptive analysis of the Treaty of Tlatelolco, the International Atomic Energy(IAEA) Safeguards, and a historical review of the development of the Brazilian Nuclear program. Issue areas are then

discussed in Chapters V to IX. First, Chapter V contend that the Doctrine of National Security and Development calls for the establishment of indigenous high-technology programs including nuclear technology. Chapter VI argues that the historical rivalry between Argentina and Brazil fomented the development of nuclear programs and their competitive atmosphere in both countries and continues to be a catalyst for fundamental change in the Brazilian approach to the nuclear option. Chapter VII maintains that the development of nuclear technology has been recognized as one of the key areas in the grand strategy of technological autonomy and economical development and requires lawmakers and statesmen to consider the sacrifices necessary to finance its development. The availability of foreign capital via international loans or weapons purchases has made economic considerations and funding inquiry less costly for the Brazilian planners. Chapter VIII claims that the influence of the military-that Brazil's military "corporate mystique" still influences policy decisions at the higher levels of civilian government in Brazil. The development of an atomic bomb has been part of a military "grand" strategy in order to further issues of sovereignty and independence for the last two decades. Chapter IX tries to assert that the non-proliferation regimes can be "bypassed" by either their own

intrinsic deficiencies or by a clandestine operation. A renegotiation of non-proliferation requirements and/or conditions, in order to comply with Brazilian national security and geopolitical ambition, would also offer some avenues for further research of nuclear weapons.

Finally, an assessment of the future of the Brazilian nuclear weapons program and the conclusions of this study are summarized in Chapters X and XI respectively.

II. HISTORY OF THE TREATY OF TLATELOLCO

In the early 1960s, the effort to prevent the proliferation of nuclear weapons in Latin America began under the leadership of Brazil. In 1961, Brazilian President Joao Goulart sent a draft resolution to the United Nations General Assembly proposing the creation of a nuclear weapons-free zone in Latin America. Brazil feared that any regional acquisition of nuclear weapons would stimulate an extremely expensive and dangerous arms race. Goulart stated that because no nuclear weapons were present in the region, their introduction would be destabilizing.

Goulart was Brazil's president from August 1961 until the March 1964 military coup. Despite the growing tensions between Goulart (a civilian) and the military, the Brazilian armed forces supported his *initial* anti-nuclear stance because they feared Argentina's technological advantages in nuclear research. However, after the coup, the Brazilian enthusiasm for a nuclear weapons-free zone declined under the first military president, General Humberto Castello e Branco.[2]

The initial Argentine reaction to Goulart's proposal was skeptical. However, the rest of Latin America received

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[2]Bolivar Lamounier, "Brazil: Inequality Against Democracy," in Diamond, Linz and Lipset, Eds., Democracy in Developing Countries, pp.124-126.

the proposal with enthusiasm. Cuba eagerly supported the proposal. Cuba amended the proposal to include Puerto Rico and the Panama Canal Zone. Cuba called for the removal of all foreign military bases from Latin America (especially the U.S. naval station at Guantanamo Bay). The United States opposed the Cuban amendment and exerted pressure on the United Nations General Assembly not to vote on the resolution during 1961.[3] The Cuban missile crisis demonstrated the destabilizing potential of nuclear weapons and fueled fears of dangerous nuclear proliferation in the region. Many Latin American nations feared being drawn into the rage of a superpower conflict.[4] In 1963, President Joao Goulart initiated the Five President's Declaration calling for a nuclear weapons-free Latin America. The presidents of Bolivia, Brazil, Chile, Ecuador, and Mexico signed the declaration. First, they believed that the absence of nuclear weapons would reduce the danger of being targeted with nuclear weapons by either superpower. Second, they thought the introduction of nuclear weapons might cause

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[3]Atkins, Latin America in the International Political System, p.337.

[4]The Soviet Union made a pledge following the Cuban missile crisis not to place offensive nuclear weapons in Cuba. However, nuclear-capable ships and aircraft of the Soviet Union have made regular port visits in Cuba. See William M. Arkin and Richard W. Fieldhouse, Nuclear Battlefields: Global Links in the Arms Race (Cambridge: Ballinger Publishing Co., 1985), pp.138 and 264.

political instability and increase regional tensions. The United Nations General Assembly formally supported the Five Presidents' Declaration on 27 November 1963.

After the Brazilian military coup in 1964, Mexico assumed a leadership role in the anti-nuclear weapons movement, sponsoring a conference in November 1965 to prepare a draft treaty. Ever since Argentina refused to sign the Five Presidents' Declaration, Brazil suspected Argentina of having intentions to develop nuclear weapons. The 1966 military coup in Argentina heightened the suspicions of Brazil. At the same time, the Brazilian military adopted the "Doctrine of National Security." This doctrine gave the Brazilian armed forces a greater role in economic policy, internal security, and suppression of leftist opposition groups.[5] The military governments in both Argentina and Brazil made national security issues a top priority, creating a vicious cycle of distrust between these nations.

The treaty negotiations took more than two years because of disagreements over transit rights for nuclear-capable ships and aircraft. The second reason for the prolonged negotiations concerned the "entry into force"

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[5]The doctrine will be analyzed in Chapter 5. See Maria Helena Moreira Alves, State and Opposition in Military Brazil. (Austin: University of Texas Press,1985), p.6.

provisions. The dispute over the transport of nuclear weapons on ships and aircraft pitted the United States against most of Latin American governments. The United States insisted on freedom for ships and aircraft with nuclear weapons to transit through Latin America. Many Latin American representatives at the treaty negotiations claimed that the United States government position undermined the entire purpose of the treaty. The Mexican delegates were most adamant that U.S. ships carrying nuclear weapons in Latin American waters would be a gross violation of the intent of a nuclear weapons-free zone.[6] The U.S. delegates were, however, successful in ensuring that the treaty allowed the free transit of ships and aircraft throughout the region. The United States also maintained its policy of "neither confirming nor denying" (NCND) the presence of nuclear weapons on any of its ships or aircraft.[7]

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[6]U.S. Senate, Committee on Foreign Relations, Additional Protocol I To The Treaty For The Prohibition Of Nuclear Weapons In Latin America (95th Congress, 2nd Session, 15 August 1978), p.47.

[7]Appendix A addresses the issue of nuclear transit rights for ships and aircraft under the Treaty of Tlatelolco. There has been far less opposition to port visits by nuclear weapons-capable U.S. Navy ships in Latin America than in many other areas of the world, such as New Zealand and Japan.

The second point of contention during the treaty negotiations concerned the "entry into force" provisions. A treaty "enters into force" when a party to the treaty completes the ratification process. The signing of the treaty document is only the first step. Ratification by the nation's legislature is also required.

The distrust between Argentina and Brazil made each unwilling to allow the treaty to become effective until the other complied with all treaty obligations. Brazil would not comply with the treaty until Argentina completed the ratification process, and Argentina made a similar demand. Therefore, Article 28 requires the ratification of the treaty by every Latin American nation before the treaty can enter into force. The treaty allows individual signatories to waive the entry into force provision. Of the 26 signatories, only three have refused to waive this provision: Argentina, Brazil, and Chile.[8]

Treaty ratification is a two-step process. First, each nation must deposit "an instrument of ratification" with the treaty organization office in Mexico that documents legislative approval of the pact. Second, the signatory nation must complete safeguard negotiations with the IAEA.

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[8]Edmund Jan Osmanczyk, The Encyclopedia of the United Nations and International Agreements (Philadelphia: Taylor and Francis, 1985), p.805.

As a result of Article 28, the Treaty of Tlatelolco has not prevented the pursuit of nuclear weapons by either Argentina or Brazil.

Despite these two important limitations, the Treaty for the Prohibition of Nuclear Weapons in Latin America was signed on 14 February 1967. The treaty headquarters are in Tlatelolco (a section of Mexico City), and the treaty is therefore known as the treaty of Tlatelolco. The treaty called for the total prohibition of the use, deployment and manufacture of nuclear weapons in the region. The preamble of the treaty of Tlatelolco claimed that the military denuclearization of Latin America would have following benefits:

> "[The Treaty of Tlatelolco] will spare the peoples [of Latin America] from the squandering of their limited resources on nuclear armaments and will protect them against possible nuclear attacks on their territories, and will also constitute a significant contribution towards preventing the proliferation of nuclear weapons and a powerful factor for general and complete disarmament."[9]

The basic treaty is only for Latin American signatories. It outlaws the "testing", use, manufacture, production, or acquisition by any means whatsoever of **any** nuclear weapons." The treaty allows signatories to pursue peaceful uses of nuclear energy, but requires complete

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[9]Preamble of the Treaty of Tlatelolco, see Osmanczyk, The Encyclopedia of UN Agreements, p.803.

compliance with IAEA safeguards. In 1969, the Treaty of Tlatelolco Council established the Organization for the Prohibition of Nuclear Weapons in Latin America (OPANAL) was established as an additional control mechanism to complement the IAEA. OPANAL is far less effective than the IAEA because of inadequate funding.

The Treaty of Tlatelolco contains two protocols in addition to the basic document. Protocol I "commits external states with dependent territories inside the zone to place those territories under the same restrictions." Protocol I is for the four nations with territorial holdings in Latin America: France, the United Kingdom, the Netherlands, and the United States.[10] Protocol II asked the global nuclear powers to respect the "non-nuclear status of Latin America, and not to use or threaten to use nuclear weapons against them."[11] The declared global nuclear powers are the United States, the Soviet Union, the United Kingdom, France, and China. All five of these nations have signed and ratified Protocol II.

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[10]All nations (except France) with territorial holdings in Latin America have ratified Protocol I: The United Kingdom in 1969, the Netherlands in 1970, and the United States in 1981. See Atkins, Latin America in the International Political System, p.338.

[11]Atkins, Latin America in the International Political System, p.338.

The United Nations General Assembly enthusiastically endorsed the treaty on 5 December 1967. The General Assembly was optimistic that a nuclear-free zone in Latin America would be easier to maintain than elsewhere in the Third World.[12] This optimism resulted from three factors. First, the regional disputes in Latin America were not as likely to explode as in many other areas of the Third World. Second, the common cultural background and growing economic interdependence made tensions between Latin American neighbors less volatile than in other parts of the globe. Finally, nuclear weapons have not become a part of the security posture of any country in the region. Therefore, the costs involved in the acquisition of nuclear weapons would discourage their development.[13]

Despite the optimism of the General Assembly, the Treaty of Tlatelolco has achieved only qualified success over the past twenty-four years. Table I provides a list of the ways that the Treaty of Tlatelolco has not achieved its goal of creating a nuclear weapons-free continent in Latin America.

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[12]Osmanczyk, The Encyclopedia of UN Agreements, p.803.

[13]Michael A. Morris and Victor Millan, Controlling Latin American Conflicts (Boulder, CO: Westview Press, 1983), pp.117-129.

TABLE I
WHY THE TREATY OF TLATELOLCO REMAINS INCOMPLETE

a. The **United States** has insisted on transit rights for nuclear weapons on ships and aircraft.

b. **France** has not ratified Protocol I.

c. Seven Nations in Latin America have not signed the Treaty. Of these nations, only **Cuba** has a nuclear program. The Cuban government has expressed its intentions to sign and comply with the treaty by 1995.

d. **Full-scope IAEA safeguards** negotiations are not completed for all signatories (especially in **Argentina** and **Brazil**).

e. **Argentina** has not ratified the treaty.

F. **Brazil** and **Chile** have not waived "entry into force" provisions.

The United States position on nuclear transit rights continues to be controversial in Latin America. The presence of any nuclear weapons in the region (even at sea) undermines the "spirit" of the treaty for many Latin Americans. The United States recently took steps to reduce this nuclear transit rights controversy. President Bush announced the withdraw and placing into storage of all nuclear weapons from U.S. surface ships and attack

submarines on 27 September 1991.[14] This move by President Bush reduces the peacetime importance of the U.S. position on transit rights of nuclear weapons in the region, although the United States may deploy such weapons at sea in crisis or wartime situations.

The French refusal to ratify Protocol I was the subject of United Nations General Assembly Resolution (44/104) in 1989. The resolution identified France's failure to ratify Protocol I as an obstacle to the treaty's success.[15] France signed Protocol I in 1979, but has failed to ratify it. Thus, the government of France has not pledged to militarily denuclearize its holdings in French Guiana, Martinique, and Guadaloupe. France argues that those Caribbean entities are integral parts of the metropole and that it has the prerogative to establish nuclear devices on French territory if it so wishes.[16]

There are 33 independent nations in Latin America. The basic treaty has been signed by twenty-six Latin American nations, leaving only seven nations that have not signed it.

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[14]R. Jeffrey Smith, "President Orders Sweeping Reductions in Strategic and Tactical Nuclear Arms," The Washington Post (28 September 1991), p.A1.

[15]UN Disarmament Yearbook (Volume 14, 1989), p.193.

[16]Atkins, Latin America in the International Political System, p.338.

These seven nations are Cuba, Belize, Guyana, Dominica, St. Christopher-Nevis, St. Lucia, and the Grenadines. Cuba refuses to sign the treaty because of its strained relations with the United States and the presence of the U.S. naval station at Guantanamo Bay. Cuba does not have the capability to produce nuclear weapons. The four island nations of Dominica, St. Christopher-Nevis, St. Lucia, and the Grenadines are still considering the treaty. None of these nations has any nuclear energy ambitions.

Belize and Guyana are prevented from signing the treaty because of territorial disputes with their neighbors. Neither nation is able to build nuclear weapons. The treaty language prevents Belize and Guyana from joining the treaty until their territorial disputes dating back to the colonial rule are resolved. Negotiations are in progress between Belize and Guatemala over their disputed territory. Similar talks are underway between Guyana and Venezuela over the Essequibo river dispute.[17] The completion of these negotiations may lead to the inclusion of Belize and Guyana in the Treaty of Tlatelolco.

Out of twenty-six Latin American nations that have signed the treaty, only eighteen nations have completed

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[17]Jack Child, Geopolitics and Conflict in South America (New York: Praeger, 1984), p.159.

safeguard negotiations with the IAEA. Article 13 of the Treaty of Tlatelolco placed time limitations for the completion of negotiations with the IAEA.

Article 13-Each Contracting Party shall negotiate multilateral or bilateral agreements with the International Atomic Energy Agency for application of its safeguards to its nuclear activities. Each Contracting Party shall initiate negotiations within a period of 180 days after the date of deposit of its instrument of ratification of this Treaty. These agreements shall enter into force, for each Party, not later than eighteen months after the date of initiation of such negotiations except in case of unforeseen circumstances or force majeure.[18]

The time requirements specified in Article 13 appear to have been unrealistic because of the long delay in completing negotiations with the IAEA. The eighteen signatories with active IAEA safeguard agreements are: Barbados, Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, and Venezuela.[19] The following tables present data on the

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[18]Osmanczyk, The Encyclopedia of the UN Agreements, p.804.

[19]Leonard S Spector, The Undeclared Bomb (Cambridge, MA: Ballinger Publishing Co., 1988), p.466.

participation of Latin American nations in two important nuclear proliferation treaties. **Table II** presents the status of the Treaty of Tlatelolco. **Table III** lists the Latin American nations subscribing to the Non-Proliferation Treaty (NPT).

TABLE II
STATUS OF THE TREATY OF TLATELOLCO

	Treaty Of Tlatelolco		
Country	Year of Signature	Year of Ratification	IAEA Safeguards
Argentina	1967	--	Partial
Antigua	1983	1983	No
Bahamas	1967	1976	No
Barbados	1968	1969	Yes
Belize	--	--	--
Bolivia	1967	1969	Yes
Brazil	1967	1968*	Partial
Chile	1967	1974*	Yes
Colombia	1967	1972	Yes
Costa Rica	1967	1969	Yes
Cuba	--	--	--
Dominica	--	--	--
Dominican Republic	1967	1968	Yes
Ecuador	1967	1969	Yes
El Salvador	1967	1968	Yes
Grenada	1975	1975	No
Grenadines	--	--	--
Guatemala	1967	1970	Yes
Guyana	--	--	--
Haiti	1967	1969	No
Honduras	1967	1968	Yes
Jamaica	1967	1969	Yes
Mexico	1967	1967	Yes
Nicaragua	1967	1968	Yes
Panama	1967	1971	Yes
Paraguay	1967	1969	Yes
Peru	1967	1969	Yes
St. Christopher	--	--	--
St. Lucia	--	--	--
Suriname	1976	1977	Yes
Trinidad and Tobago	1967	1975	No
Uruguay	1967	1968	Yes
Venezuela	1967	1970	Yes

Legend:
-- Treaty not signed or ratified.
* Entry-into-force provision has not been waived.
Source: Leonard S. Spector, Nuclear Ambitions (San Francisco: Westview Press, 1990(revised 1992), 446.

TABLE III
STATUS OF THE NUCLEAR NON-PROLIFERATION TREATY (NPT) IN LATIN AMERICA

NUCLEAR NON-PROLIFERATION TREATY	
Country	Year NPT Ratified
Argentina	**
Antigua	1985
Bahamas	1979
Barbados	1980
Belize	1985
Bolivia	1970
Brazil	**
Chile	**
Colombia	1986
Costa Rica	1970
Cuba	**
Dominica	1968
Dominican Republic	1971
Ecuador	1969
El Salvador	1972
Grenada	1975
Grenadines	1984
Guatemala	1970
Guyana	**
Haiti	1970
Honduras	1973
Jamaica	1970
Mexico	1969
Nicaragua	1973
Panama	1977
Paraguay	1970
Peru	1970
St. Christopher	1983
St. Lucia	1979
Suriname	1976
Trinidad/Tobago	1986
Uruguay	1970
Venezuela	1975

** Nations that have neither signed nor ratified the Treaty

Source: Joseph F. Pilat, Beyond 1995: The future of the NPT Regime (New York: Plenum Press,1990), 61.

The NPT is not specifically addressed in this thesis, but a great degree of overlap exist between the goals of the NPT and the Treaty of Tlatelolco.

Argentina is the only signatory of the Treaty of Tlatelolco that has not ratified the treaty because of issues of "national sovereignty and independence."[20] Argentina opposes any international inspections of its nuclear program. During treaty negotiations, Argentina wanted its right to develop "peaceful nuclear explosives" (PNEs) protected by the treaty.

Argentina believed it had the sovereign right under Article 18 to "carry out [nuclear] explosions for peaceful purposes." However, virtually all other parties to the treaty accepted the U.S. and Soviet position that all nuclear explosives have military applications and should be forbidden under the treaty. The U.S.-Soviet interpretation is based on Article 5 of the Treaty that outlaws all nuclear explosives "that are appropriate for warlike purposes."[21] Some proliferation experts assume that Argentina's position

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[20]Richard Kessler, "Peronists seek "Nuclear Greatness," The Bulletin of Atomic Scientist (Volume 45, Number 4, May 1989), p.13.

[21]Leonard S. Spector and Jacqueline R. Smith, "Deadlock Damages Nonproliferation." The Bulletin of Atomic Scientists (Volume 46, Number 10, December 1990), p.39-47.

on "peaceful nuclear explosives" was an effort to legitimize its efforts to build a nuclear warhead.

Brazil and Chile responded to the Argentine refusal to ratify the treaty by refusing to waive the entry into force provision. However, Chile (unlike Brazil) allows IAEA inspections at all of its nuclear facilities. Until recently, Argentina and Brazil were unwilling to renounce nuclear explosions and refused to accept "full-scope" IAEA safeguards. This has been the primary stumbling block preventing the completion of the Treaty of Tlatelolco. Brazil and Argentina do not allow IAEA inspections at certain nuclear facilities developed with "indigenous" technology. An end to the nuclear rivalry between Argentina and Brazil is essential before "full-scope" IAEA safeguards can be established.

In Chapter IV this thesis examines the important role of nuclear rapprochement between Argentina and Brazil in fulfilling the objectives of the Treaty of Tlatelolco. Chile has expressed the desire to waive the entry into force provision, if Argentina ratified the treaty. Cuba would then be the sole Latin American nation with a nuclear energy program not subscribing to the Treaty. This would further isolate Cuba from its Latin American neighbors, possibly providing the leverage necessary to encourage Cuba to sign

and ratify the treaty. Therefore, the nuclear reapproachment between Argentina and Brazil is one the most important step in ending the threat of nuclear proliferation in Latin America.

III. INTERNATIONAL ATOMIC ENERGY ASSOCIATION(IAEA) SAFEGUARDS

The IAEA was given a dual mandate: to facilitate the peaceful use of nuclear energy and to prevent the misuse of nuclear material or facilities for military purposes. The objective of the IAEA safeguards is the timely detection of any diversion of substantial quantities of nuclear material. The IAEA hopes to deter any such diversion by creating the risk of international embarrassment via an early detection.[22] The safeguards procedures of the IAEA require a system of strict accounting of fissile material and control over certain nuclear technologies like reprocessing and enrichment facilities. The safeguards agreements are the result of negotiations between the IAEA and individual countries. Unfortunately, the IAEA negotiations normally do not fully achieve their stated objectives in the safeguards agreement. If a nation does not declare a facility conducting any related nuclear research to be part of the safeguards agreement, then the facility is exempt of IAEA inspections and safeguards.

There are three different types of safeguards agreements used by the IAEA to negotiate with a host nation. The first type of safeguards agreement, created in 1961,

[22]Weiss, "Tighten Up on Nuclear Cheaters," p.11-12.

pertained only to nuclear reactors up to 100 megawatts. In 1965, the IAEA Information Circular 66(INFCIRC/66) established safeguards for nuclear facilities of all sizes and types.[23] However, INFCIRC/66 safeguards apply only to specific facilities identified by the host nation for IAEA inspections. INFCIRC/66 establishes only partial IAEA safeguards because it allows a nation to prevent IAEA inspections at any number of undisclosed nuclear facilities not covered in the agreement. The treaty of Tlatelolco requires safeguards agreements based on INFCIRC/66. Argentina and Brazil have safeguards agreements with the IAEA based on INFCIRC/66 that allows certain nuclear facilities to be exempt from IAEA inspections.

In 1971, IAEA Information Circular 153(INFCIRC/153) established a third agreement that requires full-scope safeguards of all nuclear facilities in a nation.[24] The Treaty of Non-Proliferation of Nuclear Weapons(NPT) requires the full-scope safeguards based upon INFCIRC/153 for all its signatories. Argentina and Brazil have not signed the NPT and have refused full-scope safeguards agreement with the

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[23]Turrentine, "Lessons of the IAEA Safeguards Experience," in Lewis A. Dunn, Ed.,Arms Control Verification & the New Role of On-Site Inspections(Lexington, MA: Lexington Books, 1990), p.44.

[24]Ibid, p.43.

IAEA because they believe them to be an infringement on their sovereignty.

But IAEA safeguards have gained international acceptance since the agency creation on 29 July 1957. In 1962, the United States gave the IAEA the responsibility for safeguarding most U.S. nuclear transactions. This action increased the prestige of the IAEA.[25]

In 1967, the Treaty of Tlatelolco designated IAEA safeguards to be the cornerstone of its nonproliferation efforts. Similarly, the NPT gave the IAEA a major safeguards role in 1970. This boosted the credibility of the IAEA. The full-scope safeguards establish by INFCIRC/153 became a requirement for the NPT in 1971.[26]

The non-proliferation mission of the IAEA was further enhanced in 1974 when a group of seven nuclear exporting nations established export controls. Nuclear Suppliers Guidelines(NSG) established by the Zangger Committee in 1974 and the London Club in 1975 complemented IAEA safeguards. The NSG maintains"trigger lists" of sensitive nuclear technologies that if exported would require the application of IAEA safeguards. Lewis Dunn states that "nuclear exports

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[25]Turrentine, "Lessons of the IAEA Safeguards Experience," p.43.

[26]Ibid, p.43.

controls and supplier restraint have significantly complicated, slowed , or increased cost of efforts by problem countries to acquire nuclear weapons."[27]

In summary, IAEA inspectors regularly visit nearly 900 facilities in over 50 countries. Their safeguards assure that nuclear materials have not been diverted for military purposes. It has a membership of 110 nations and has been conducting inspections for over 25 years.[28]

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[27]Dunn, "Four Decades of Nuclear Non-Proliferation," in Aspen Strategy Group Report, New Threats, Winter 1985, p.238.

[28]Davis, "Non-Proliferation Regimes," CRS Report for Congress, p.8.

IV. HISTORICAL DEVELOPMENT OF BRAZIL'S NUCLEAR PROGRAM.

> "Nuclear development cannot be prevented, or significantly inhibited, in Argentina, Brazil, or ultimately all of Latin America. However, it can be encouraged to advance in a manner supportive of regional peace and security."[29]

The first nuclear concerns of Brazil began in the early 1950s when Brazil asked an unresponsive United States to share nuclear technology with Brazil in return for uranium exports.[30] In 1956, the Brazilian government established the National Committee for Nuclear Energy (CNEN) and the institute of Atomic Energy (IPEN). These agencies believed that Brazil's economic growth required nuclear power. The task assigned to CNEN and IPEN was to develop indigenous nuclear capabilities. However, the Brazilian scientific infrastructure was not as advanced as in Argentina and Brazil lacked the close ties with the European scientific community enjoyed by Argentina.[31] Brazil did have a close relationship with the United States following their

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[29] Redick, "Latin America and the Bomb" in Christian Science Monitor,(Volume 74, October 20 1982), Column 1, p.23.

[30]Solingen, "Brazil: Technology, Countertrade, and Nuclear Exports," in Potter, Ed., International Nuclear Trade and Nonproliferation, p.114.

[31]Donnelly and Davis, "Argentina, Brazil, and Nuclear Proliferation," CRS Report for Congress, p.5.

cooperative efforts during World War II. Thus, Brazil became one of the first recipients of U.S. nuclear assistance under the Eisenhower "Atoms for Peace" program.

The Brazilian military had nuclear research programs independent of CNEN. Brazil had an official nuclear program under the state-owned Brazilian Nuclear Corporation (Nuclebras) and "parallel" nuclear programs controlled by the Brazilian military. The "parallel" nuclear programs were also known collectively as the Autonomous Nuclear Technology Program (PATN) and they were run by the military-controlled National Nuclear Energy Commission (CNEN). Within the PATN, the Brazilian army, air force, and navy each had their own nuclear research program. Nuclear technology was, however, shared between Nuclebras and the parallel program. The parallel program was a major proliferation concern because of its secrecy and use of unsafeguarded facilities.[32]

Brazil built two nuclear research reactors and one power reactor with United States assistance under the "Atoms for Peace" program. The research reactors, **IEAR-1** in Sao Paulo and **TRIGA-UMG** in Belo Horizonte, became operational in 1957 and 1960 respectively. All nuclear exports from the United States under the "Atoms for Peace" program required

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[32]Spector, Nuclear Ambitions, p.243.

the supervision of the IAEA. Brazil adopted some of the lessons learned from IAER-1 and Triga-UMG and built its first indigenous research reactor (**REIN-1** in Rio De Janeiro). REIN-1 started operations in 1965. This research reactor used medium-enriched uranium supplied by the United States.[33] Since the U.S. supplied the nuclear fuel, IAEA safeguards were required at REIN-1.

The Westinghouse Corporation began the construction of Brazil's first nuclear power plant in 1971. This deal with a U.S. firm was a subject of controversy because it did not include any transfer of technology.[34] This reactor used low-enriched uranium fuel. Under the terms of the contract, Brazil would remain dependent on external sources of enriched uranium because the U.S. would not transfer any uranium enrichment technology. This frustrated Brazil's military government and motivated it to seek nuclear technology from nations other than the United States.

Brazil was slowly developing an indigenous nuclear capability, but, the Brazilian military wanted faster progress. In 1974, Argentina's Atucha I power plant started operations and highlighted the gap between Argentine and

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[33]Ibid, p.262.

[34]Donnelly and Davis, "Argentina, Brazil, and Nuclear Proliferation," p.5.

Brazilian nuclear programs. Many Brazilians worried that Argentina was obtaining the capability of building nuclear weapons. The Brazilian military was particularly distressed over the Argentine plutonium reprocessing plant at Ezeiza.

The construction of Brazil's first nuclear power reactor was a slow process fraught with cost overruns and delays. The **Angra I** power plant began to operate in 1982, but did not begin full commercial operations until 1987 because of technical difficulties.[35] The Brazilian disappointment over the progress of Angra I became part of a growing rift between Brazil and the United States during the late-1970s. The Carter administration's emphasis on human rights soured U.S. relations with the Brazilian military government. In 1977, Brazil broke its military assistance treaty with the U.S. mainly because of external pressures related to President Carter's human rights policies.

Brazil negotiated with West Germany for access to nuclear technologies that the U.S. refused to transfer. Brazil wanted uranium enrichment and plutonium reprocessing technologies. In 1975, Nuclebras completed a mammoth nuclear transfer agreement with West Germany called the "Deal of the Century." It provided for the sale of eight

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[35]Potter, Ed., International Nuclear Trade, p.112.

1,300 megawatt nuclear reactors, a pilot-scale plutonium reprocessing plant, and a commercial-scale uranium enrichment facility.[36] The West German government did not require full-scope IAEA safeguards as a condition for the transfer of sensitive nuclear technology. This allowed Brazil to share technology between its "parallel" research programs and the state-owned Nuclebras corporation.

The technology obtained from West Germany allowed the indigenous nuclear programs of the PATN to advance at a more rapid pace. Brazil began building two secret uranium enrichment plants in 1983, one at the Aramar Research Center in Ipero and other at the IPEN facility in Sao Paulo. In 1987, Brazil achieved a major breakthrough in centrifuge enrichment technology at the IPEN facility at the University of Sao Paulo. This breakthrough ensured Brazil access to weapons-grade uranium during the 1990s.[37]

By late 1988, the Ipero enrichment plant had 300 operating centrifuges. The estimated capacity of this facility could produce enough weapons-grade uranium for two to three weapons annually. According to a West German

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[36]Spector, Nuclear Ambitions, p.243.

[37]Spector The Undeclared Bomb, p.258.

intelligence report, as early as 1987, Brazil had the ability to produce highly-enriched uranium.[38] Brazil circumvented safeguards on West German technologies in order to use them in unsafeguarded parallel program. The West German government protested to Brazil in 1987 that the Brazilian National Nuclear Commission (CNEN) was siphoning off technicians from the safeguarded West German-Brazilian enrichment program, to work on the parallel program.[39] In 1985, financial problems and construction delays forced Brazil to curtail the purchase of nuclear reactors from West Germany. Brazil canceled plans to build any new nuclear reactors beyond the two power plants under construction at the time (Angra II and Angra III). **Table VI** presents Brazil's nuclear facilities.

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[38]Mark Hibbs, "Germans say Brazil Developing Two Production Reactors," Nucleonics Week (27 July 1989), p.19.

[39]Antonio Rubens Britto de Castro, Noberto Majlis, Luiz Pinguelli Rosa, and Fernando de Souza Barros, "Brazil's Nuclear Shakeup: Military Still in Control," The Bulletin of Atomic Scientists (Volume 45, Number 4, May 1989), pp.22-25.

TABLE IV
BRAZIL'S NUCLEAR INFRASTRUCTURE

One Operational power reactor
ANGRA I (Light-water, 626 MWe, US supplier)

Two power reactors under construction
ANGRA II (Light-water, 1300 MWe, German supplier)
Completion goal 1994- idle since 1988
ANGRA III (Light-water, 1300 MWe, German supplier)
Completion goal 1999- foundation stage

Four research reactors
[One without IAEA safeguards]

Four Uranium enrichment plants
[Two without IAEA safeguards]
ARAMAR Research Center, Ipero
IPEN, Sao Paulo
("several dozen kilograms" of 20% enriched uranium per year)

Two laboratory scale plutonium extraction plants
[one with partial IAEA safeguards]
IPEN, Sao Paulo(5 kg of plutonium per year)

163, 276 metric tons of assured uranium reserves

Source: Leonard S. Spector, Nuclear Ambitions, 260-261.

In 1988, Nuclebras was dissolved and state utility, Electrobras, took control of all nuclear power plant operations.[40] The 1988 reorganization was directed by the Sarney administration(1985-1989) as a cost cutting measure and as a part of a privatization program. This reorganization required civilian control over nuclear research that had been dominated by the military.

A new Brazilian Constitution was promulgated in 1988 that allowed nuclear research for only peaceful purposes. The Brazilian military continued to operate many classified facilities even though the Constitution outlawed the use of nuclear technology for military purposes. A vivid example of the Brazilian military's secret efforts to build an atomic weapon was the discovery of a nuclear test site built in the Amazon. In September 1990, President Collor visited a 320-meter deep hole in Serra do Cachimbo built by Brazil's former military governments to test nuclear weapons. According to the Brazilian journal VEJA, this US$1 million dollar hole proved both the bellicose intentions of the military government and its irresponsible spending habits.[41]

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[40]Potter, Ed., International Nuclear Trade, p.112.

[41]"Militares: Acao tapa-buraco [Military: Operation fill the Holes}," (in Portuguese), VEJA, 26 September 1990, translated and reported by INFO-SOUTH, (9 November 1990).

President Collor symbolically sealed the shaft and promised to end all secret nuclear research by the military.

Even after these positive steps were taken by the Collor administration, the nuclear facilities and the infrastructure of the nuclear program, still remain intact in Brazil. International nonproliferation regimes like the IAEA argue that the cosmetic changes made to the nuclear infrastructure in Brazil are insufficient in order to guarantee their good will.

Table V provides a summary of the reasons why Argentina or Brazil have been suspected by the international community of trying to build nuclear weapons.

TABLE V
SUMMARY OF ARGENTINE AND BRAZILIAN PROGRESS TOWARDS BUILDING AN ATOMIC BOMB

a. Ample uranium resources
b. Sophisticated scientific community (European connections)
c. Large nuclear energy infrastructure (nuclear fuel cycle complete)
d. Refusal to sign NPT nor comply with the Treaty of Tlatelolco
e. Clandestine and unsafeguarded nuclear facilities
f. Delivery systems for nuclear weapons available(Condor II in Argentina and Orbita in Brazil)

Argentina and Brazil have the nuclear expertise to build a nuclear weapon before the end of the century. The decision to build a nuclear weapon, however, requires substantial financial backing that neither economy could easily support. It would be difficult for the democratic governments in Argentina and Brazil to justify such an expense to their publics.

In August 1991, the Brazilian public learned that US$65 million in a secret fund was used for nuclear projects by the Strategic Affairs Secretariat (SAE).[42] This secret fund purchased centrifuge machinery at the Ipero enrichment plant.[43] The existence of this fund raised doubt on the promises made by Collor in the Guadalajara Accord. It questioned Collor's true intentions regarding nuclear weapons, and it showed the danger of military insubordination in a fledgling democracy. If nuclear weapons are developed during the 1990s in either nation, it will likely be through defiant military programs. Therefore, the only way to ensure that these nations do not produce nuclear

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[42]"Poco sem fundo [Bottomless Pit]," (in Portuguese), ISTOE SENHOR, 14 August 1991, translated and reported in INFO-SOUTH (7 September 1991). The Strategic Affairs Secretariat (SAE) is the Brazilian equivalent to the National Security Council in the United States.

[43]"Uma verba atomica [An Atomic Fund]," (in Portuguese), VEJA, 14 August 1991, translated and reported by INFO-SOUTH (20 September 1991).

weapons will be the establishment of civilian supremacy over the military.

Leonard Spector warns that "Argentina and Brazil are primed to cross the nuclear threshold if political winds should shift."[44] Full-scope IAEA safeguards are the best protection against nuclear proliferation "political winds" change.

Since the mid-1970's, Brazil's nuclear policy has been characterized by a drive toward the development of an independent export capability couple with ambivalence regarding the use of nuclear power for military purposes.[45] Nuclear exports were seen as assuring Brazil of increased international prestige, as well as providing it with foreign exchange to help service the country's increasingly burdensome foreign debt. The potential of nuclear weapon capabilities was interpreted as an instrument of influence in Brazil's foreign policy. Finally, technological autonomy- the freedom to research, to develop, and to exploit new and advanced alternatives in the industrial,

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[44]Spector, "Nuclear Proliferation in the 1990s: The Storm After the Lull," in Aspen Strategy Group Report, New Threats, p.37.

[45] Binkley and Gardner, "A Collar on Brazil's Bomb? article in Eye on Supply, a quarterly review published by the Emerging Nuclear Suppliers Project at the Monterey Institute of International Studies, (Number 2, Fall 1990), p.27.

military, and scientific fields became part of the logical approach for the development of nuclear technology in Brazil.

A. CHRONOLOGY OF EVENTS

A chronology of the most significant events in the development of the nuclear program in Brazil can be summarized as follows:

1957- The International Atomic Energy Agency (IAEA)is founded. The purpose of the agency is to "accelerate and enlarge the contributions of atomic energy to peace, health, and prosperity throughout the world." It shall ensure, so far as it is able that assistance provided by it or at its request, or under its supervision or control, is not used in such a way as to further military purpose. The IAEA is a warning system and not an enforcement mechanism.

1967- Treaty of Tlatelolco is signed. The Treaty entered in operation in 1968.(Treaty for the prohibition of nuclear weapons in Latin America.)

1969- Treaty of Tlatelolco supplemented by the establishment of the OPANAL (Organization for the Prohibition of Nuclear weapons in Latin America).

- A bilateral agreement for scientific and technical cooperation is signed between Brazil and Germany. A

key role in these negotiations was played by the new president of NUCLEBRAS (the new Brazilian state nuclear energy corporation, Paulo Nogueira Batista, who then became the minister-counselor of the Brazilian embassy in Bonn to implement the accord.[46]

1970- Nonproliferation of Nuclear Weapons Treaty (NPT) is created.

1971- Brazil agrees to purchase its first nuclear power plant, called Angra-1 from Westinghouse Co..

1972- Bilateral agreement of nuclear development cooperation with the U.S. signed on Sep 17, 1972.

1974- Nuclear Supplier Group is formed.(Japan, Germany, U.S., China, the U.K, and France).

- India detonates an atomic weapon for "peaceful purposes".

1975- Agreement concerning the peaceful use of nuclear energy between Brazil and Germany is signed.

1975- Brazil becomes the first country in history to buy the complete "fuel cycle" needed for nuclear weapons development. German-Brazilian deal to construct up to eight nuclear power plants, a Plutonium reprocessing plant, and a Uranium enrichment facility from

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[46] Gall, "Atoms for Brazil, Dangers for All," Foreign Policy(Number 23, Summer 1976), pp.155-201.

Germany's Kraftwerk Union. Sale of the last two facilities is controversial, since either could be used to produce materials needed for a nuclear bomb.

- There are reports that the Argentineans had removed 50kg of Plutonium waste from its Atucha atomic station (potentially enough for 5 atomic bombs).

1976- Safeguards Agreements signed, by both Argentina and Brazil, with the IAEA.

1979- Brazil begins its "parallel" nuclear program, which is under military control and, unlike the civilian program, is not subject to international safeguards.

1980- In April, Argentina and Brazil sign an agreement for the peaceful uses of nuclear energy. This was the beginning of a fruitful relationship.

- In May, both nations signed another agreement to help in the construction of an Argentine (German supplied) power reactor. Brazil will supply Uranium and zircalloy tubes, and the Brazilian company NUCLEP will construct the core vessel and other heavy components for Argentina's third(German supplied) reactor.[47]

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[47] John R. Redick,"Argentina and Brazil: An Evolving Nuclear Relationship", Occasional Paper Seven, published by the Centre for the International Policy Studies, University of Southampton, Southampton, England, July 1990, p.9.

1982- Both Argentina and Brazil refuse to accept the full scope of IAEA safeguards; reject the NPT and refuse to recognize the Tlatelolco resolutions applying to their territories.

- Both countries reserve their rights to develop Peaceful Nuclear Explosives(PNE) based on the India example.

1985- 1st Foz do Iguazu Agreement is signed.

- The Presidents of Brazil and Argentina announce that the two nations will develop nuclear energy solely for peaceful purposes, and will increase nuclear cooperation activities. (November 1885)

1986- The Brazilian press reveals that Brazil's Air Force is building a nuclear weapons test site. President Sarney denies the allegation, claiming that the site is to be used for rocket tests.(August 1986)

- The National Nuclear Energy Commission(CNEN) is placed under the direction of the National Security Council, giving its programs a military character.(October 1986)

1987- The Brazilian press reveals that Brazil's "parallel", unsafeguarded nuclear program is being funded by secret CNEN bank accounts, even as Brazil's official

nuclear program is subjected to deep budget cuts. (January 1987)

- President Sarney announces that Brazil has the ability to enrich uranium, a sensitive capability which could give the country a key element for the manufacture of a nuclear bomb.(September 1987)

1988- The unsafeguarded enrichment plant at Ipero is officially opened.(April 1988)

1990- 2nd Foz do Iguazu Agreement on July declared the commitment of heads of state (Collor de Mello and Carlos Menem) to renounce all nuclear testing and embrace a bilateral inspection regime and full scope of IAEA safeguards. They also committed both nation to eventual full-adherence to the Tlatelolco treaty.

- In September, President Collor de Mello announces the closure of a facility long suspected of being a nuclear weapons test site. Civilian replaced military officers at the nation's Center for Nuclear Policy.
- In October, Brazil acknowledges a 15-year old military program to build a nuclear bomb and announces its termination.
- These events were key factors in the creation of the Joint System of Accounting and Control of Nuclear

Material and the Brazilian-Argentine Agency for the Accounting and Control of Nuclear Material.

1991- Brazilians begin looking into the possibility of a deal with Iran in order to sell the components and parts of ANGRA 3.

- On December 13, a new Brazilian-Argentine Agency for the Accounting and Control of Nuclear Materials (ABACC), and the IAEA signed a mutual inspection agreement without being part of the NPT. The bilateral agreement established a Joint System for Accounting and Control of Nuclear Materials (SCCC) to be administered by the ABACC.
- In July 1991, the Argentine and Brazilian foreign ministers sign an Agreement in Guadalajara, Mexico implementing the 1990 Foz do Iguazu Declaration in order to assigned ABACC responsibilities to conduct inspections and carry out other procedures for the application of the Joint Control System(SCCC).
- On July 18, Presidents Collor de Mello and Carlos Menem(Argentina) sign the accord for the Exclusive Peaceful Use of Nuclear Energy.[48]

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[48] "Nuclear Related Trade and Cooperation Developments", Eye on Supply, Number 6, Spring 1992, p.6.

- Germany states that it will stop supplying Brazil with nuclear equipment and technology unless Brazil accept full-scope IAEA safeguards by 1995.(November 1991)

1992- Cuba announced its intent to join the agreement of Tlatelolco.

1993- Brazilian government welcomed U.S. moratorium on nuclear testing until 1994.

V. DOCTRINE OF NATIONAL SECURITY AND DEVELOPMENT

Latin American national security ideology, particularly as it developed in Brazil, was specifically concerned with the link between economic development and internal and external security.

An analysis of *Escola Superior de Guerra* (ESG) textbooks, particularly the *Manual Basico de Escola Superior de Guerra* (the basic textbook), is an important tool for understanding the Doctrine of National Security and Development, because of the *Manual basico's* importance in professional and ideological training for both top-level Brazilian military and highly placed civilian technocrats in the state's administrative bureaucracy.[49] Such analysis is essential for understanding the development of the national security state and the reactions of holders of power to events related to the nuclear power sector in Brazil.

Within the structural development of the doctrine priority was given to the development of an integrated body of thought concerned with state planning and security and development policy. It is clear the important role the ESG played in incorporating top-level civilians, as students and

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[49]Moreira Alves, State and Opposition In Military Brazil, p.13.

in the regular or visiting faculty of the college. The ESG thus cemented a military-civilian network that:

> "institutionalized and disseminated the Doctrine of National Security and Development.[50] This network, organized as the Association of Graduates of the Superior War College (Associacao dos Diplomados da Escola Superior de Guerra), (ADESG), conducted conferences, study sessions, debates, and courses all over Brazil, spreading ESG principles and doctrines to other key military and civilian political actors."[51]

The ESG has influenced the curriculum in other military schools in Brazil. Alfred Stepan notes the spread of the doctrine particularly to the Escola de Comando do Estado Major do Exercito(ECEME), the top-level training school for the military high command. Stepan traces the following developments: in 1956 the ECME curriculum made no mention of conferences on counterinsurgency or internal security strategies; by 1961 courses on national security had become more prevalent; by 1968 the ECEME curriculum included 222 class hours devoted exclusively to the discussion of internal security doctrine and another 129 class hours devoted to the analysis of nonclassical forms of warfare. Only 21 hours were devoted to traditional military topics

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[50] Ibid, p.14.

[51] Ibid, p.14.

such as territorial defense against external aggression.[52] This becomes highly significant in that, to be promoted to general or to hold any command post as an officer in Brazil, one must be a graduate of the ECEME as elaborated in the *Manual basico*, the school's doctrine has evolved from a partial definition of internal and external security to a more global vision of national security integrated with economic development. By controlling various organizations the ESG played the role of think tank for the Doctrine of National Security and Development.

A. BASIC CONCEPTS OF THE DOCTRINE

The doctrine of National Security and Development begins with a theory of war. The teachings of the ESG envisage different kinds of war: total, limited and localized, subversive or revolutionary, and indirect of psychological.[53]

Maria Moreira Alves writes that:

> "national security planning, and particularly efficient intelligence gathering on the activities of all sectors of political and civil society, is therefore crucial to the proper defense of the nation itself, for, according to ESG theory, international Communist forces orchestrate and carefully plan propaganda campaigns and other forms of ideological manipulation, which are then secretly

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[52] Ibid, p.14.

[53] Moreira Alves, State and Opposition in Military Brazil, p.15.

implemented in the target nation so as to win over sectors of the population and weaken the government's ability to react."[54]

Such a doctrine clearly imposed a substantial threat to the protection of human rights and allow for concealed programs to be developed under the banner of national security "requirements".

Developing a new strategy in the face of permanent cold war led to what Golbery do Coto e Silva-the most influential Brazilian theorist-already at that time was calling the "Grand Strategy":

> "We have, in the highest levels of national security, a strategy-which has been called by many the Grand Strategy or the General Strategy. It is an art that comes under the exclusive competence of the government and that must coordinate, within a basic strategic concept, all of the political, economic, psychosocial, and military activities that may lead to the achievement of the objectives that embody the national aspiration toward unity, security, and growing prosperity. To this strategy are, thus, subordinated other strategies, whether they be military strategy, or political, economic, or psychosocial strategies....The Grand Strategy is like the theory of war that provides its foundation: it is indivisible and total.[55]

Golbery held that a government must be organized around effective implementation of the grand strategy. The state must have full power to organize the infrastructure

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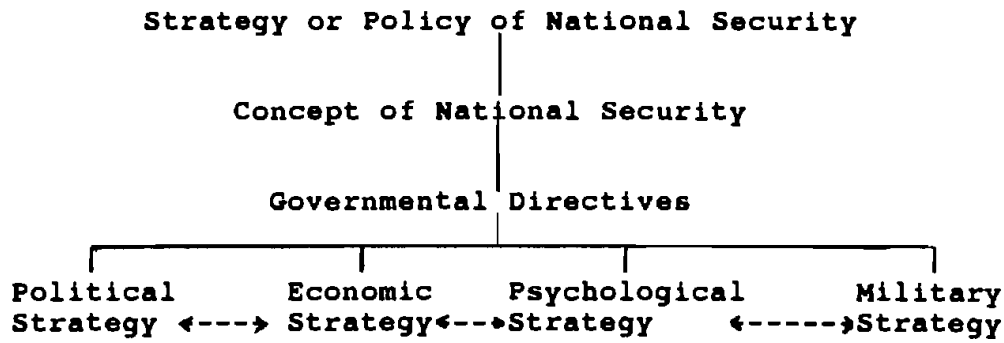
[54] Ibid, p.16.

[55] Moreira Alves, State and Opposition in Military Brazil, p.20.

necessary for national security, and particularly to guarantee internal security. He developed a theoretical model of the governmental structures that ideally should perform this task by drawing the connections between the various state organizations entrusted with carrying out the crucial "Policy of National Security" (**Figure 1**).



Source: General Golbery do Couto e Silva. Conjuntura Politica Nacional, O Poder Executivo e Geopolitica do Brazil (Rio de Janeiro: Jose Olympio Ed. , 1981), p. 26.

Figure 1. Golbery's Theoretical Model for the Political Structure and Organization of the National Security Doctrine

B. BRAZIL'S ROLE IN AN INTERNATIONAL CONTEXT

The second important element of the Doctrine of National Security and Development is the way in which it sees Brazil's particular place in the arena of world superpower confrontation. The most influential of the

geopolitical studies that explore this question has been General Golbery's *Conjuntura politica nacional*.[56]

According to Golbery, **geographical conditions** determine, in large part, a nation's destiny. The power of the nation and its ability to achieve full economic development depend on its resource endowment, and even political and strategic alliances among nations are related to and partially determined by geographical position. In a climate of total and permanent war, there is no room for neutrality.

Golbery, although accepting the necessity of subordination to the U.S., nonetheless claims the bargaining position of a privileged ally. Golbery states that:

> "When we see that the United States negotiates, using the weight of dollars, immense amounts of aid in order to gain the support and cooperation of undecided people or even frankly hostile nations of the Western European region in the Middle East, or in Asia- it seems to us to be only just that we should also learn to bargain at high prices and to use the fact that we, as a nation, hold the trump card. We should use this to obtain the necessary means to develop our land... and to carry out our mission. We may also invoke a "manifest destiny" theory, especially since it does not collide directly with that of our bigger and more powerful brother in the North."[57]

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[56]Ibid, p.23.

[57]do Couto e Silva, Conjuntura politica nacional, pp.95-138.

This viewpoint is widely held by the military. It helps to explain why Brazil has followed an independent foreign policy and has even come into conflict with the U.S. government in recent times. Brazilian military leaders believe that the highest price should be paid for the continuing support of Brazil and it integration into the general framework of the Western alliance. In addition, the military clearly has some imperialist ideas of its own, particularly as regards the relationship between Brazil and other Latin American nations. Thus it has taken a "pragmatic approach to foreign relations." The military clearly believes in the manifest destiny of Brazil, in its geographically strategic position, and in its potential to achieve superpower status.

C. THE ECONOMIC MODEL OF THE DOCTRINE

The third important element of the Doctrine of National Security and Development is its economic development component.[58] First, there can be no national security without a high degree of economic development. A nation's security requires the development of productive resources, industrialization and effective utilization of natural resources, extensive transport and communication networks to

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[58]Moreira Alves, State and Opposition in Military Brazil, p.25.

integrate a vast territory, and the development and training of a skilled labor force with technical know-how. Thus, among the most important factors in a nation's security are its capacity for accumulation and absorption of capital, the quality of its labor force, the development of science and technology, and the efficacy of its industrial sectors.[59] Industrial development is indispensable to national economic policy.

In terms of overall continental and national defense in the context of Western defense strategy, economic and infrastructural development in Brazil are essential to counteract the extreme vulnerability resulting from the country's vast empty spaces. Golbery terms the uninhabited and undeveloped expanses "paths of penetration," which must be effectively "plugged".

It is essential to keep in mind that, under the Doctrine of National Security and Development, military defense rather than the population's basic material needs is understood as the primary objective of economic development. Development of the vast expanses of Brazil's interior and the Amazon, for example, is desirable mainly as a means of plugging up possible paths of penetration, not as a way of raising the standard of living in the area. This has been

[59] Manual basico da ESG, p.338.

particularly true of development programs in the central plains regions along the banks of the great Araguaia and Amazon rivers. It is, of course, precisely in the central interior region and in the Amazon that Brazil's greatest mineral wealth, one of General Golbery's strategic "trumps," is to be found. This approach coincides with recent events involving the new "Amazonian Initiative". In recent newspaper reports Brazil has been negotiating logistic support for its new strategy for protecting the Amazonian region.(11,000 km of borders with neighboring countries!).[60]

The main focus of the economic model is the strengthening of Brazil's productive potential so as to increase its bargaining power in the global geopolitical arena. Benefits that might accrue to the population in the process are secondary to geopolitical considerations in setting priorities.

To increase production, a military-industrial complex is to be encouraged and developed. Brazilian theoreticians still argue the need for a strong state, able to apply a variety of fiscal incentives, tax inducements or penalties to regulate the model of economic development in an almost completely centrally planned economy.

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[60]-Amazon protection back on the agenda", Latin American Regional Report:Brazil Report , RB-94-01, 13 January 1994, p.9.

In summary, the economic model is a model of capitalist development based on an alliance among state, multinational, and local capital. The ESG textbook explicitly considers the contribution of multinational corporations to be by and large positive in the economic development of a nation, in spite of the fact that it may generate considerable internal opposition.[61] Security, as an element in the "development with security" concept, implies the need to control the social and political environment so as to provide an attractive climate for multinational investment. Social peace is also necessary for the achievement of maximum rates of capital accumulation in order that rapid economic growth reaches a "takeoff" stage of development. Ultimately, the economic model is designed to augment Brazil's potential as a world power. For such primordial and all important goals, the ESG textbook emphasizes, the sacrifice of successive generations may be necessary.[62]

The Doctrine of National Security and Development, because of its economic, technological, and geopolitical concerns, without any doubts enhances the likelihood of future nuclear development in Brazil. If the "old military

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[61]Moreira Alves, State and Opposition in Military Brazil, p.27.

[62] Ibid, p.28.

guard" has not relinquished their political interventionist aspirations, and the possibility of a resurgent military influence or a ruling military regime become a reality then the "grand design" strategy and the teachings of the ESG will play a significant role in the strategic political thinking of the most influential military leaders.

VI. ARGENTINE-BRAZILIAN RIVALRY: FROM COMPETITION TO COOPERATION

The struggle for influence between Argentina and Brazil is the oldest of all Latin American conflicts. It can be traced back to the Treaty of Tordesillas in 1494 which divided the New World between the Spanish and Portuguese kingdoms.[63] The cultural differences between the Spanish in Argentina and Portuguese in Brazil have been a constant source of tension in Latin America. Rivalry between Brazil and Argentina has its roots in colonial times and arose from trade, border and sphere of influence disputes. A declared war between Argentina and Brazil has never occurred. However, armed confrontations arose on several occasions.

The first military clash occurred over the "Banda Oriental" region in Uruguay (1825-1828). Later, Brazil used armed incursions into Argentine territory in an attempt to bring down Argentine dictator, Brigadier General Juan Manuel de Rosas, in the early 1850s. Argentina and Brazil were allies in a "marriage of convenience" against Paraguay during the 1865-1870 War of the Triple Alliance. Despite being allies, violent confrontations between the Argentine and Brazilian militaries erupted in Paraguay during this

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[63]Stanley J. Stein, The Colonial Heritage of Latin America (New York: Oxford University Press, 1970), pp.3-27.

war. A series of minor confrontations over borders continued into the twentieth century.[64]

A large source of friction and competition between the two countries centers around their relation with the three so-called "buffer states" of Bolivia, Paraguay, and Uruguay. Together, these three countries form the La Plata River Basin System because they all contain tributaries which empty into the La Plata river. The La Plata Basin is an area of geopolitical competition because it contains iron and because of its energy reserves(coal, oil) and hydroelectric potential.[65]

The Argentine sense of superiority over Brazil is rooted in its cultural and intellectual traditions. Argentine history is full with articulate intellectual espousing the virtues of modernization and technology. It has maintained close cultural ties with Europeans. Argentine literature praises the need for technology and material progress to achieve a destiny left by their European ancestors. In the mid-1800s, authors like Domingo Faustino Sarmiento and Jose Marmol were instrumental in directing Argentine development. Sarmiento wrote Civilization and

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[64]Jack Child, Geopolitics and Conflicts in Latin America: Quarrels Among Neighbors (New York: Praeger, 1984), p.101.

[65]Kelly and Child, Geopolitics of the Southern Cone and Antartica, p.146.

Barbarism in 1845 and Marmol wrote Amalia in 1855.[66] These influential books are an example of the importance of modernization and progress in the Argentine tradition. Thus, Argentina believes itself to be the leader in Latin America because of its social, cultural and scientific achievements.

In contrast to Argentina, Brazil's perception of Latin American leadership results from its massive size. Brazil's aspiration to regional leadership has been analyzed extensively.[67] The Brazilian faith in national "greatness" on the Latin American continent can be compared with the United States belief in Manifest Destiny. Brazil, like the United States in the 19th century, believes it too will evolve into a world power. Brazil has expressed interest in negotiating a commercial outlet to the Pacific and has placed a high priority on using the vast commercial potential of the Amazon.

Some Brazilian geopolitical writers claim that a coming age of a Pax Brasiliana will replace the declining Pax

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[66]E. Bradford Burns, Latin America (Englewood Cliffs, NJ: Prentice Hall, 1990), p.90.

[67]Analysis of Brazilian desire for international status may be found in Riordan Roett, "Brazil and the United States," Journal of Interamerican Studies and World Affairs (volume 27, Number 1, 1985) pp.1-17 and Wayne Selcher, Ed., Brazil in the International System: The Rise of a Middle Power (Boulder, CO: Westview Press, 1981).

Americana. Brazil believes itself to be the "Colossus of the South" that will fulfill its destiny by becoming the first world power to emerge from the southern hemisphere. The economic crisis of the 1980s has quieted the champions of Brazilian greatness. However, nationalism continues to be a powerful political force. Jack Child argues that "Brazil's path to greatness is seen as a distinct threat by most Argentines.[68]

Arthur Stein argues that rivalry and competition arise from geographical roots as well as for nationalistic interests. Therefore, competition arises between states that are positionally proximate. Competition is not global since states cannot compete with all others simultaneously and not all others are relevant or salient. States like Argentina and Brazil are proximate competitors, they compete locally, with one another because they are similarly situated, whether geographically, geopolitically, militarily, economically, technologically, or in some other way.[69]

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[68]Jack Child, "The Status of South American Geopolitical Thinking," in G. Pope Atkins Ed., South America Into the 1990s: Evolving International Relationships In a New Era (Boulder, CO: Westview Press, 1990), p.62.

[69]Arthur Stein, Why Nations Cooperate Circumstance and Choice in International Relations, Ithaca, New York-London, Cornell University Press, 1990, p.193.

Brazil cooperated closely with the United States from World War II until the late 1970s. The goal of Brazilian cooperation with the United States was to obtain essential foreign investment and technology in order to build a first-class economy. The pro-U.S. alignment of Brazil received the scorn of the other South American nations that were distancing themselves from the United States during the 1960s. Argentina thought it was threatened by a conspiracy of its neighbors. The Argentine military resented the U.S. cooperation with Brazil because its qualitative advantage over the Brazilian military slowly eroded.

When Brazilian relations with the United States soured during the Carter administration, Brazil's relations with its Latin American neighbors improved. Brazil no longer appeared to be a U.S. proxy. Brazil began to emphasize South-South economic and political relations and improved its relations with Argentina. In 1979, General Figueiredo became the first Brazilian president to visit Buenos Aires in 45 years.[70] Jack Child notes that "the loosening of

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[70]Wayne A. Selcher, "Brazil and the Southern Cone Subsystem," in G. Pope Atkins Ed., South America Into The 1990s, p.94.

traditional United States-Brazilian ties permitted the unprecedented strengthening of Argentine-Brazilian links."[71] Other theorists argue that the changes in Brazilian foreign policy came after the end of the economic miracle of 1967-1974.

But the roller coaster of Argentine-Brazilian relations continued during the 1980s, primarily because of the Malvinas-Falklands War. The failure of Brazil (and especially Chile) to side enthusiastically with Argentina during the Falklands War renewed Argentina's suspicions of its neighbors. The Argentine military feared that Brazil might take advantage of the turmoil following the defeat in the Falklands to attack Argentina.[72] The sense of isolation felt by Argentina during the Falklands War fueled the desire to build an atomic weapon.

A. ARGENTINE-BRAZILIAN NUCLEAR COMPETITION

The nuclear aspect the Argentine-Brazilian rivalry poses disturbing questions because both countries are "threshold nations" capable of developing a nuclear weapon before the end of this decade. Neither nation has faced an external threat that night arguably call for the development of a

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[71]Child, "The Status of South American Geopolitical Thinking," p.60.

[72]Ibid, p.62.

nuclear deterrent.[73] The interest in acquiring nuclear technology were for reasons of national pride and to satisfy energy needs. A nuclear arms race began because both viewed nuclear development to be an important factor in their enduring competition for regional preeminence. At a minimum, neither could afford to fall behind the other in the development of nuclear weapons.

Argentina and Brazil are not members of the NPT. In 1991, President Collor expressed Brazil's reasons for not becoming a member of the NPT as follows:

> "Brazil did not sign the Non-Proliferation Treaty because it creates difficulties for access to technology... the NPT is a straightjacket that would hinder our access to new forms of technology that are fundamental to the prosperity of Brazil."[74]

Collor's view on the NPT was not universally accepted in Brazil. Former Brazilian Senator Roberto Campos claimed Collor's interpretation of the NPT is wrong. According to Campos, when Brazil refused to sign the NPT, it unleashed widespread suspicions about Brazilian acquisition of nuclear technology. Instead of reaching technological autonomy by

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[73]Donnelly and Davis, "Argentina, Brazil, and Nuclear Proliferation," p.2.

[74]"Collor Views the NPT," (in Spanish), EXCELSIOR, July 16 1991, translated and reported in Foreign Broadcast Information Service (FBIS-LAT-91-148, 1 August 1991) pp.32-38. Argentina has similar reasons for refusing to sign the NPT.

rejecting the NPT, Brazil embarked on a path of technological isolation (from the United States).[75] The present administration of Itamar Franco is looking for a middle ground. It seems that maintaining a "status quo" in nuclear issues while not joining the NPT is the present strategy.

European countries like West Germany and France catered to the Argentine-Brazilian desire to obtain nuclear technology and refused to follow the technology transfer restrictions desired by the United States. The major Western European powers have competed in the highly lucrative trade of selling nuclear technology for "peaceful" purposes to Argentina and Brazil. There are restraints on the proliferation of nuclear technology for peaceful reasons but they are vague and uncertain. As a result, nuclear energy programs can be pursued that, while ostensibly for peaceful purposes, have at least partial military appeal.[76]

B. REDUCTION OF MILITARY TENSIONS

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[75]Roberto Campos, "Os orfaos da historia [The Orphans of History]," (in Portuguese), ESTADO DE SAO PAULO, 17 September 1989, translated and reported by INFO-SOUTH (10 October 1990).

[76]Morris and Millan, Controlling Latin America Conflicts, p.120.

The reduction of military tension began during the mid-1980s. Evidence of the decreased military tensions between Argentina and Brazil can be drawn from the four following developments.

First, the Argentine armed forces will reduce their troop strength by 30% by the year 2000. A plan submitted to President Menem by former Defense Minister Antonio Erman Gonzalez will cut the Argentine armed forces from the current level of 95,000 troops to approximately 65,000 troops.[77] The Brazilian armed forces will also undergo significant reductions from their current size of 320,000 troops, but the percentages to be cut have not been announced.[78] Second, in August 1991, Argentine President Menem, Brazilian President Collor and Chilean President Patricio Aylwin signed a commitment to ban chemical and biological weapons from their countries.[79] Third, the nuclear agreement signed with Brazil during the Guadalajara summit in July 1991 includes confidence-building measures

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[77]"Armed Forces to Reduce, Sell Property," (in Spanish), MADRID EFE, 17 August 1991, translated and reported in Foreign Broadcast Information Service (FBIS-LAT-91-160, 19 August 1991), p.15.

[78]"Brazil:Hot Brass," The Economist (6 July 1991), p.42.

[79]"Collor assina acordo com Menem sobre arma quimica, [Collor Signs Agreement with Menem about Chemical Weapons]," (in Portuguese), FOLHA DE SAO PAULO, 20 August 1991, translated and reported in INFO-SOUTH (13 September 1991).

that will reduce suspicion and distrust. The mutual inspections established by the Guadalajaran Accord open many previously classified military installations. The rapprochement between Argentina and Brazil is understandable because neither state would want to start a costly arms race.[80]

The cooperation displayed in arms control and international agreements offers proof that the historical rivalry between Argentina and Brazil may have subsided. The most compelling evidence that the military rivalry between the two nations has receded is the increasing integration of their economies. The steps being taken towards a common economic market between Argentina, Brazil, Chile and Uruguay appear to be ushering in a new era in international cooperation in South America.

The reduced tensions between Argentina and Brazil make the formation of the Southern Cone Common Market (Mercosur) possible. The principle of free market capitalism has replaced the statist economic policies that ran the Latin American economies into bankruptcy during the late 1970s and

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[80]Morris and Millan, Controlling Latin American Conflicts, p.117.

1980s.[81] The "lost decade" of the 1980s caused an overall decline in GNP and standards of living. The end of the Argentine-Brazilian rivalry could produce an important "peace dividend" because of reduced defense spending and increased trade.

Under the Mercosur common market, Argentina and Brazil will reduce tariffs by 20% a year beginning in 1990, reaching zero tariffs by 1994. President Collor called Mercosur "the starting point for overcoming the effects of economic recession, of technological inadequacies, and of social backwardness in our countries."[82]

Mercosur will provide a stepping stone in the eventual completion of the Enterprise of the Americas Initiative (EAI) announced by President Bush in June 1990. The EAI promises to make a common economic market from Alaska to Argentina.[83] President Bush wanted regional economic markets established before integration with the U.S. market can be completed. The present administration has not

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[81]An interesting comparison between the economic problems occurring in the Soviet Union and Latin America is made by Julia Michaels, "Will the Soviets Learn a Latin Lesson?" The Christian Science Monitor (23 August 1991), p.6.

[82]"Brazil and Partners Launch Mercosur," Latin American Regional Reports: Brazil Report (RB-91-04, 2 May 1991), p.8.

[83]U.S. House of Representatives, Committee on Foreign Affairs, The Enterprise For The Americas Initiative (101st Congress, 2nd Session, 27 September 1990).

expressed a different approach. Fundamentally the strategy is the same. Therefore, the end to the rivalry between Argentina and Brazil is an essential step towards the eventual establishment of a hemispheric common market.

But today's reality is far from a honeymoon situation between the governments of Argentina and Brazil. Political and territorial tensions still exist and both governments has expressed reservations and cautious optimism about the future of economic and political relations between Argentina and Brazil.

VII. SOCIOECONOMIC CONDITIONS AND FUTURE NUCLEAR DEVELOPMENT

Will the 1990s in Brazil be a period of renewed and sustained economic growth, more equitable distribution of income, a substantial diminution in the "social deficit," or some combination of these desirable outcomes? How are these factors going to affect the development of further nuclear projects? To deliver on such promises and satisfy popular aspirations the Franco government will have to overcome essentially negative heritage bequeathed it by the Sarney administration and the political fiasco of the Collor administration. Inflation must not only be brought back from the brink of hyperinflation, but it must also be kept under permanent control. The 1991 year's total matched 1989's 1,800 percent, albeit with only 270 points coming under Collor. During the last part of 1993 and the beginning of the present year finance minister Fernando Henrique Cardoso has been fighting with a 33% monthly inflation.[84] In **Table VI** the monthly rate of inflation is indicated throughout the year 1993. The accumulated inflation rate for 1993 reached 2,567.5% compared with the previous record of 1,783% in 1989.[85] Also urgently required

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[84] "Escalating criticism of programme", Latin American Regional Reports: Brazil Report, RB-94-01, 13 January 1994, p.7.

[85] Ibid, p.7.

are significant relief from the crushing burden of foreign debt(i.e. the debt of the Itapu binational entity, which is responsible for the construction and management of the Itapu hydroelectric dam together with the Paraguayan government, amounts to $56 million)[86] ; control of the soaring internal debt (which depends upon drastic reduction of the public sector deficit); and increased savings and investment over the 1989 level of 18 percent of GDP.[87]

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[86] "President Franco Promises to Pay Itapu Debt", (in Portuguese), Voz do Brazil Network 2200 GMT 2 July 1993, translated and reported in FBIS(FBIS-LAT-93-127, 6 July 1993), p.39.

[87] Schneider, Ronald. Order and Progress: A political History of Brazil, Queens College,City University of New York, Boulder: CO, Westview Press, 1991, p.367.

TABLE VI
BRAZIL'S SOARING INFLATION-1993

Month	Percent(%) of Increase figure(%)
January	28.7
February	26.5
March	27.8
April	28.2
May	32.3
June	30.7
July	32.0
August	33.5
September	36.7
October	35.1
November	36.1
December	38.3
Jan-Dec 1993	2,567.5
Jan-Dec 1992	1,157.8

Source: Latin American Regional Reports:Brazil report(RB-94-01, 13 January 1994)

Consumer technology has found its way into Brazilian homes with a vengeance. While only 15.6 percent of Brazilian households had running water in 1950, by 1988, fully 71 percent were so equipped. Only 26.1 percent of the Brazilian homes had refrigerators in 1970, while by 1988 the proportion had grown grew to 69 percent. By 1988, television sets could be found in 72 percent of Brazilian homes, and automobile in nearly a third of the Brazilian

households.[88] Likewise government programs to improve the education and the health of the masses have reached ever greater number in the postwar era. The access of the population to essential social services like education, basic sanitation and health services has improved significantly in recent decades. Nevertheless, the improvement has not been sufficient to reduce the regional inequalities, and, in absolute numbers, the population lacking basic services is great.

The absolute numbers of Brazilian poor remain so great not only because of the tripling of the Brazilian population since the 50s(52 million in 1950 to some 150 million in 1991)[89] but also to the limited capacity and desire exhibited by the patrimonial regime of the 1980s to adequately respond to that population growth. The essence of this half-hearted response is made especially plain when Brazil's human development is measured against that of other countries.(See **Table VII**). While the regime has maintained a level of development for the lower classes sufficient to prevent wholesale social upheaval, the economic and technological improvements have been enjoyed mainly by elites.

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[88] Roett, Brazil: Politics in a Patrimonial Society, p.216.

[89] Ibid, p.216.

TABLE VII
HUMAN DEVELOPMENT INDEX RANKING FOR SELECTED LATIN AMERICAN COUNTRIES*

COUNTRY	INDEX	COUNTRY	INDEX
Uruguay	32	Belize	67
Chile	38	Paraguay	73
Costa Rica	40	Ecuador	77
Argentina	43	Peru	78
Venezuela	44	Nicaragua	85
Mexico	45	El Salvador	94
Panama	54	Honduras	100
Brazil	60	Guatemala	103
Colombia	61	Bolivia	110
Cuba	62	Haiti	125

* The Human Developmental Index was created by the United Nations Development Programme to provide a statistically integrated way to compare levels of human development among countries. A smaller ranking number indicates a higher level of human development.

Source: Human Development Report 1991.

Other internal elements can be obstacles for accurate forecasting and analysis of the Brazilian economy. The informal economy and its constituents seriously understates their income to researchers, often to the extent of declaring no income at all even when this is in clear contradiction to their living conditions.

A. ECONOMIC ROLLER COASTER

Even when promising news are clear examples of the intense economic efforts in the Brazilian developmental strategy, the situation is far from being resolved or contained. On the positive side the country's largest oil field located in Santos Basin, under the administration of Petrobras, begun producing on 5 December 1993 with a daily volume of 8,000 barrels.[90] Multi-national companies have already prospected for oil in this area, which has considerable potential. But the fundamental changes to the structure of the economic system have not happened yet.

Brazil's development, particularly that led since the 1950s by industrialization, has required high rate of investment, a significant share of which has come from abroad. As foreign portfolio investment through the Brazilian stock markets is still quite new and small-scale, this has involved both direct investment and borrowing- with the latter having come to overshadow greatly the former- although in 1988-1989 billions of dollars of conversion of debt into equity began to reverse this two decade trend. While direct investment sets up a counter flow of financial resources in terms of profits and royalties, this has been

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[90]"Country's Largest Oil Well Begins Production", (in Portuguese), Jornal do Brazil,8 December 1993 p.1, translated and reported in FBIS(FBIS-LAT-93-240-A, 16 December 1993), p.8.

of relatively modest dimensions in Brazil, as a substantial proportions of profits have generally been reinvested. But recent trends in this regard are far from reassuring. Indeed, legal remittances of profits and dividends rose from $909 million in 1987 to $1.54 billion the next year before jumping to $2.3 billion in 1989.

For their part, loans require both interest and either amortization of principal or their "rolling over" in the form of additional borrowing to cover payments due on old loans. Such a heavy load of debt service depletes foreign exchange reserves and thus requires massive trade surpluses- earned essentially by expanding foreign sales and reducing imports. This in turn restricts internal consumption and feeds inflationary pressure. Eventually the problem comes around to not only rescheduling payment on the foreign debt, but also renegotiation of its terms and efforts to gain a significant degree of outright relief from creditor banks and governments- something very much on the agenda of Brazil's current administration. In fact, Brazil signed an agreement with private foreign creditors on 29 November 1993, in Toronto, Canada. In the Toronto agreement the foreign debt(about 93-95% of the total amount) was

negotiated in much longer terms.[91] According to the President of the Brazilian Central Bank Pedro Malan:

> "The negotiations lead Brazil to a balanced division between instruments that have flexible interest rates and fixed rates that protect the country from the abrupt fluctuations of international interest rates. We obtained a reduction in the stock of the debt, a reduction in the service, and we reduced the volume of the guarantees in the agreement in comparison with other agreements like the Mexican or the Argentine ones. Brazil is spending sensibly less per unit of debt, and we have a cash flow compatible with our payment capability. We are confident we are in a position to honor the commitments made."[92]

By any meaningful standards of comparison, Brazil with its debt of between $115 and $120 billion is not really one of the region's most indebted countries.[93] True, the sheer bulk of its debt is rivaled only by that of Mexico, but it is at or below the region's norms in terms of relative perspective. Thus, in per capita terms, accumulated foreign debt is about $800 compared with roughly $1,350 for Mexico, $1,700 for Argentina, and over $2000 for Venezuela. At around 30 percent, the proportion of external debt to GDP is

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[91] "Central Bank President Interviewed", (in Portuguese), Jornal do Brazil, 5 December 1993 p.15, translated and reported in FBIS(FBIS-LAT-93-240-A, 16 December 1993), p.6.

[92] Ibid, pp.6-7.

[93] Graham and Wilson. The Political Economy of Brazil, p.370.

quite low for a region in which for some countries debt equals or exceeds GDP. Also comparatively good within the Latin American experience is the debt to export earnings ratio of just over three to one.

While in 1988 a comprehensive rescheduling of $63.6 billion, the bulk of Brazil's debt to foreign private banks and well over half its total external debt, was achieved, this arrangement quickly began to come apart at the seams, and in 1989 Brazil fell far behind on interest payments, with the banks uninterested in further negotiations with a lame-duck government. With 1988 exports at almost $33.9 billion running higher than predicted, permitting a trade surplus of over $19 billion, Brazil actually managed to show a $4 billion balance of payments in surplus after paying off the preceding year's deficit in this regard. This was accomplished despite interest payments of $9.9 billion and amortization of half that much. (Experts believe that the real value of Brazilian exports- frequently under invoiced- runs between 20 and 25 percent higher than the prices registered with Cacex.) In 1989 some $34.4 billion in recognized foreign sales combined with an increase of imports to $18.3 billion to produce a trade surplus of $16.1 billion. This dropped to $11 billion in 1990, to $9.9 billion by 1992 as imports needed for development were

increased, some products were diverted from export to domestic consumption, and oil prices shot up as a result of the Mideast crisis. Debt negotiations stalled as Brazil insisted that capacity to pay be the basic criterion.

Despite all the difficulties, the Finance Ministry, according to Finance Minister Fernando Henrique Cardoso, "has made-and continue to make-a major effort to fight inflation, promote foreign investment, prosecute tax evasion and reduce import tariffs(about 14% in 1993).[94]

The problem of servicing its foreign debt and a viable solution to their national deficit, in addition to a possible hyper-inflationary situation, will create an environment of skepticism and vigilance in Brazil. Within the members of the political bureaucracy the technological reform process could be slowed down considerably but, nevertheless, it will not stop the alternatives of future technological projects as an alternative to the short or long term development of the Brazilian state.

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[94] "Outlines Economic Measures",(in Portuguese), interview in Rio de Janeiro TVE Television 1722 GMT; 7 Dec 1993, translated and reported in Foreign Broadcasting Information Service(FBIS-LAT-93-234,8 December 1993), p.31.

VIII. THE MILITARY INFLUENCE IN BRAZILIAN POLITICS

Of all the South American transitions from military to civilian rule, the Brazilian is perhaps the least promising with regard to the prospects of civilian supremacy. The period from 1964 to 1985, the Military Republic, was unique in Brazilian history. Even though the armed forces had been actively involved in the political process in Brazil, the collective decision to overthrow a civilian regime and retain power was a different element in the military strategy to restore rule and order.[95]

What characterized the Military Republic was its determination to rapidly modernize the Brazilian economy while ignoring social issues and marginalizing the political process. The military transfer key decision areas to a new power elite: the technocrats. Often foreign trained, and normally economist and planners, they operated with the full support of the military and without regard for either the social or the political consequences of their decisions.[96]

A. HISTORICAL DEVELOPMENT ON MILITARY REGIMES

The historical conditions and processes which produced the military corporate mystique are relatively clear. Early

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[95] Roett, Brazil: Politics in a Patrimonial Society, p.129.

[96] Ibid, p.128.

in its history, the small country of Portugal with its limited material and personnel resources discovered the advantages of utilizing military structures for governing purposes to compensate for inadequacies in the area of civil organization. This notion constitutes the major functional principle of the armed nation tradition.[97] Portuguese inadequacies in the ares of resources and civil organization were even more in evidence when that country accepted the challenge of colonizing the territory known as Brazil . Because a military setting proved to be the one in which the colonists were most amenable to a certain amount of organization and discipline, a mystique related essentially to state building began to form around Brazilian land forces with far-reaching implications. As the Brazilian patrimonial state militarized civil society, it was mainly the paramilitary *ordenanzas* and militia that were employed for strengthening governmental institutions. The regular army was too small and ineffective to provide much influence in an institutional sense.

The importance of historical precedents and processes became apparent again immediately after Brazil gained its independence. The emperor clashed with the civilian elite

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[97]Hayes, The Armed Nation: The Brazilian Corporate Mystique, p.245.

over the role of the regular army and the issue of centralism versus feudalism. The emperor and the army eventually lost that struggle and the Brazilian political elite with its agrarian roots and federalistic tendencies created the national guard to absorb the old "ordenancas" and militia and to pursue the armed nation tradition in a federalistic context. The army remained in its small, neglected condition with its institutional status protected by the figure of Ramiro Casias, the providential military statesman who demonstrated that a career military man could fulfill the military messiah tradition.[98]

Because the national guard theoretically filled the position of reserve army to the regular army, the army rather logically stood as the only force capable of aspiring to fulfill the armed nation tradition when the national guard failed to do so. The development and expansion of urban forces and centralizing trends within national government all came together to point to a position of pivotal importance for the army which became obvious with the founding of the republic in 1889.

In the area of politics, the political scientist Edward Feit has offered some concepts regarding armed bureaucrats

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[98]Ibid, pp.247-248.

that seem to fit the Brazilian situation fairly closely.[99] Feit describes a type of polity which he label as praetorian wherein there is a lack of central organizations and a plethora of peripheral institutions. Within that polity, "politics seem formless, because the political process is sustained neither by strong sentiment nor by strong social forces." Cohesion without consensus is a principal character of a praetorian polity. As a related matter, " the ability of politicians to formulate meaningful policies...is limited" and "the politicians seem to prefer internecine intrigue and place hunting to the maintenance of order." Moreover, "soldier fear a breakdown of order, for if a breakdown occurs, it will be they who have to set things aright."

As for the intervention of soldiers in such a society, Feit sees them as reluctant to do so "except,perhaps, where legitimated by history." Moreover, "The very shapelessness of the polity, with its different institutions isolated from each other and at different levels of development, permits it being given a fictitious form. Military regimes can do this for a time." Has not the Brazilian military corporate mystique served this purpose in varying degrees for a long period of time? Have not Brazilian military leaders always

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[99] Ibid, pp.247-251.

felt legitimated by history (i.e., predestined) to save Brazil from the odious machinations of unpatriotic politicians?

In an institutional sense, then, the army has served as a persistent and significant element in Brazilian public life, tending to focus upon the fundamental need for organization, structure, integration and homogeneity. This would apply to the problem of social integration although to a lesser degree. Oliveira Vianna's assertion that Brazilian society has always lacked a national mystique seems apropos to the situation.[100]

When a civilian president took over in 1985(for the first time in twenty one years), a few important measures were taken by the government thrust, without consent of the military, such as the legalization of independent trade unions and of the small Communist Party, and the reopening of relations with Cuba. This partial removal of what Brazilians called the 'authoritarian debris', was reinforced by parts of the 1988 Constitution which replaced the authoritarian Constitution of 1967. The new constitution established severe restrictions on state prerogatives, including drastic limitations on police detention powers, and provided firm guarantees to individual rights with the

[100]Ibid, p.250.

introduction of the 'habeas corpus' and the 'habeas data'. Congress was given special powers to approve the declarations of state of defense or state of siege and to order their suspension.[101]

The constitution also redefined the way in which the military is charged with the maintenance of law and order. In the previous 1967 Constitution the military had been charged with the task of maintaining law and order and guaranteeing the normal functioning of the three constitutional powers. Also, the military had been placed under the supreme authority of the president, but only "within the limits of the law". This clause, which, in turn, had been inherited from previous constitutions, made obedience to the president conditional on the military's assessment of what was or was not within the limits of the law. The new constitution eliminated this conditional clause, plainly subordinating the military to the president, and assigned the armed forces with the task of defending law and order, but only on the initiative of any one of the constitutional powers (the executive, the legislative or the judiciary). However, this apparent improvement maintains the military's concern with internal law and order and does

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[101] Aguero, The Military in the Process of Political Democratization in South America and Southern Europe: Outcomes and Initial Conditions, p.7.

not reduce the autonomy of the armed forces. Indeed, while the military is placed under the authority of the president, other powers are allowed to request its intervention in domestic affairs, giving the military room to lobby and play these powers against each other, enhancing its own bargaining strength.[102]

The military functions, in practice, as a separate, fourth power. It lobbied and pressured the constitution-drafting congress with a specialized team of thirty officers, and succeeded in getting its way on several issues, such as the option for presidentialism rather than parliamentarism, the length of Sarney's presidential term, the limitations imposed on agrarian reform, and the maintenance of a domestic role for the armed forces. Also, the military rejected a law which would have rehabilitated army officers that had been dismissed during the dictatorship, and has refused, on grounds of 'military morale', to admit responsibility for previous human rights abuses, let alone to tolerate judicial investigation. The military develops its own research on the ideological inclinations of inland peasants and has autonomously taken

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[102]Ibid, p.8.

the initiative to defend "law and order" by verbally and forcefully acting against strikes.[103]

Since 1985, the military has had substantial participation in the cabinet with six active duty generals. In fact, of the six ministers who still held their posts in 1989, five were military men, three of whom are the service ministers. The military has strongly rejected any move toward creation of a defense ministry and has resisted any attempt to reduce their extended presence in public bureaucracy. For instance, it succeeded in transferring the military-controlled secretariat of the recently abolished National Security Council to the new National Defense Council, as an "advisory secretariat", although it was not included in the law that created the new Council. The presence of retired officers in state bureaucracy and public enterprises remains extremely high.[104]

In Brazil, under the guise of legal party activities, elections, and a functioning Congress, it was the military that had a grip on the government, although the collegial mechanisms of military input were less institutionalized

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[103] Ibid, p.8.

[104] Ibid, p.8.

than in the other cases.[105] The presidents were selected by the High Command and then elected by an electoral college where the official party held a majority due to ceaseless manipulation of electoral rules by the government. They remained always receptive to a military amply represented in the government by the service ministers , who commanded the forces, and by the chief of Military household, the secretary of the National Security Council and the Director of the National Information System.[106]

Why, then, in view of the results of the 1964-85 experience, do Brazilians continue to perpetuate the military corporate mystique by granting military leaders their relative juridical autonomy from which they can exercise their moderating role? It seems that Brazilian leaders, civilian as well as military, have become conditioned over a long period of time to interpreting national situations in a certain way. In effect, Brazilian leaders seem to have become locked into a pattern of cyclical behavior that has become traditional. As pointed out, this pattern has been based upon stereotypical thinking wherein the civilian leader plays the role of promoter of

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[105] Aguero, The Military in the Process of Political Democratization in South America and Southern Europe: Outcomes and Initial Conditions, p.21.

[106] Ibid, p.21

vested interests. In this scenario, the military man, by implication, occupies the moral high ground so that, in any struggle involving claims to legitimacy, he holds the advantage.

B. THE RETURN TO CIVILIAN RULE

The Argentine and Brazilian militaries withdrew from control of the government during the 1980s in an effort to maintain the integrity of the armed forces. The institution of the armed forces is focused on the organizational, structural, and prestige needs of the military.

The performance of the military government affects the popular perceptions of the entire military. Mismanagement by the military government leads to a dramatic loss of prestige for the institution of the armed forces. Eventually, military leaders see the need to narrow the concerns of the military to the needs of the armed forces institution, not running the entire government. This leads to the military's eventual disengagement from politics.

The economic problems confronting Argentina and Brazil motivated the military to disengage from politics and encouraged the return to civilian rule during the 1980s. The international debt crisis and the fiasco of the Falkland-Malvians war inspired the military to retreat from governing because the astronomical debt service payments

consuming the national budget. Simplistically stated, the military desired to get "back to basics" by leaving government to civilians and concentrating on the individual needs of the armed forces.

The Brazilian people traditionally admired the military, but the tales of corruption and incompetence tarnished the military's reputation. The Argentine military was disgraced by the defeat in the Malvinas-Falklands war. The institutional needs of the armed forces required the return of political power to civilians. The military would take a back seat to civilian presidents, but still held considerable influence from behind the scenes.

The armed forces thought they could have the best of both worlds, leaving the government, but still retaining the prerogatives of power enjoyed while ruling the nation. Some of the prerogatives retained by the Argentine and Brazilian militaries were control over the military budget, regular pay raises, and an active duty membership in the civilian president's Cabinet.

A problem for the military arose because the liberalization increased the strength of political opposition movements in the early 1980s. Dr. Thomas Bruneau declared that "the initial opening stimulated the rebirth of civil

society."[107] The military could no longer control the liberalization process. Liberalization strengthened opposition to the military government, and the pressures for the return to democratic civilian rule increased beyond the expectations of the military government.[108]

The people of Argentina elected Raul Alfonsin as president in 1983 to replace the military government of General Leopoldo Galtieri who was disgraced by the Falklands War. In 1985, Brazil elected a civilian president, Tancredo Neves, (with Jose Sarney as Vice President) marking the end to Brazilian military rule.[109]

The military in both nations still retained many prerogatives during the 1980s. But the reins of political power were no longer monopolized by the military. Alfred Stepan in Rethinking Military Politics, has an outstanding analysis of the changing military prerogatives in Argentina

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[107]Thomas Bruneau, "Brazil", in John Highley and Richard Gunther, Eds., Elites and Democratic Consolidation in Latin America and Southern Europe. Austin, TX: Univ. of Texas Press 1991, p.9.

[108]John Orme, "Dismounting the Tiger: Lessons from Four Liberalizations," Political Science Quarterly (Volume 2, Summer 1988), pp.245-265.

[109]Jose Sarney assumed the Presidency because of the unexpected illness and death of Tancredo Neves in 1985. The military allowed Sarney to rise from vice president to president, even though rumors of a return to military rule were widespread.

and Brazil. **Figure 2** provides an updated version of the chart used by Stepan to show the trends in declining prerogatives and increasing contestation by the armed force in both nations.

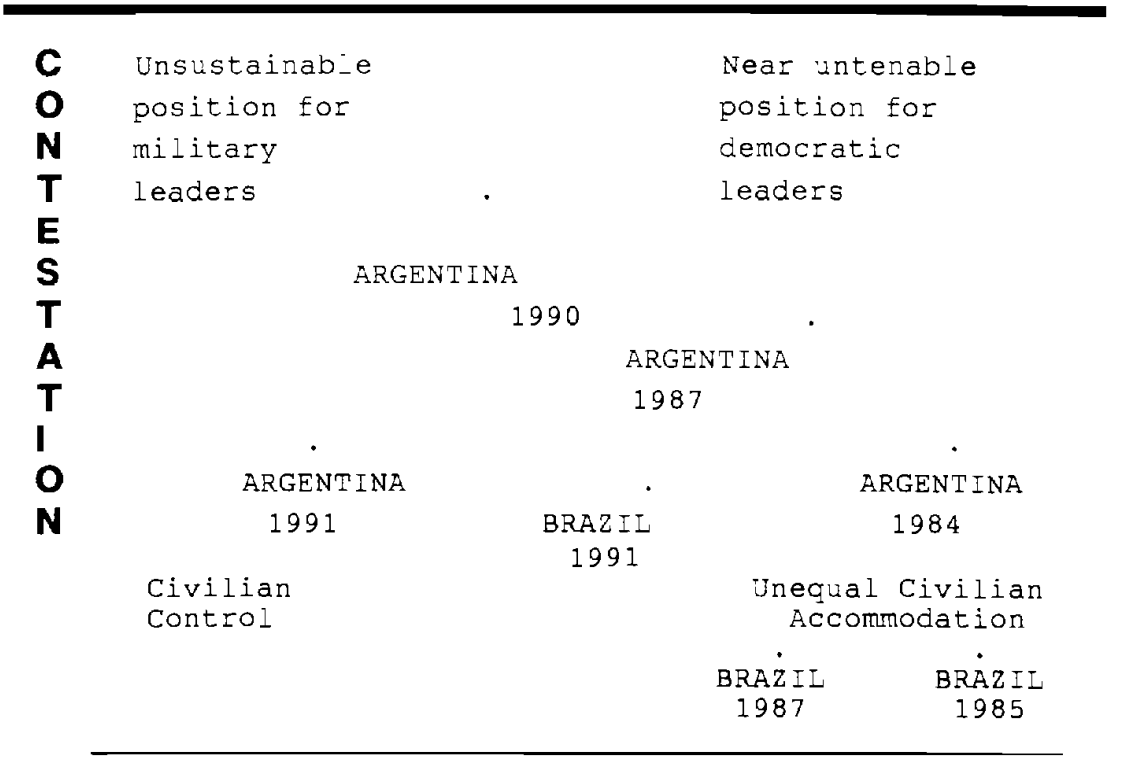

Figure 2
Updated Version of Stepan's Analysis[110] on Military Prerogatives in Argentina and Brazil

The civilian governments in both Argentina and Brazil have experienced increased contestation from their

[110] Stepan, Alfred. Rethinking Military Politics-Brazil and the Southern Cone, p. 125.

respective militaries since 1985. The high points of conflict between the Argentine military and the government occurred during the 1987 Easter week mutinies[111] and the failed December 1990 military coup.[112] The Argentine Military appears to be under firmer civilian control since this failed coup. The rising competition between the government and military in Brazil has involved the issues of low military pay and declining budgets.[113] The Brazilian military is feeling, once again, that under the new republic their needs can be neglected in the same way it happened during the authoritarian regime. They expect increased military budgets, a significant modernization program, and their professional and technical concerns to be addressed and considered during the formulation of new legislation.

In 1988, the newly elected President Collor de Mello had a series of serious confrontations with powerful generals soon after his inauguration. In his inaugural

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[111] Stepan, Rethinking Military Politics, p.122.

[112] "Fact Sheet: The President's Trip to Argentina," U.S. Department of State Dispatch(10 December 1990), 326, and Christina Bonasegna,"Argentine Revolt reveals Lingering Army Tensions," The Christian Science Monitor(5 December 1990), p.1.

[113] James Brook, "'Free Falling Salaries' Anger Brazil's Military," The New York Times(6 December 1990), p.A4.

statement, Collor claimed to have "a silver bullet" capable of "killing inflation". Following the speech, retired general Newton Cruz insulted the President by saying that "a statesman with only one bullet in his revolver should use it against his own head."[114] Even today, in 1994, President Itamar Franco still battles with military pressure and the possible resurgence of military influence in Brazilian politics. The rumors of a possible coup, triggered by frustration and discontent with domestic policy and foreign affairs' decisions amidst increasing allegation of corruption, are a serious concern for the present administration.[115]

Financial constraints trouble the Brazilian military. Shortages of munitions, obsolete weaponry, rationed food, and low pay are now the main features of the Brazilian armed forces.[116]

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[114] "Collor Has Public Clash With Generals", Latin American Regional Reports:Brazil Report(RB-90-04, 3 May 1990), p.6.

[115]"Scale Of Corruption Scandal Provokes New Fears Of Military Intervention," Latin American Regional Reports:Brazil Report(RB-94-01, 13 January 1994), p.1.

[116]"Military Frustrated With Lack Of Funds," Latin American Regional Reports:Brazil Report(RB-91-06, 11 July 1991), pp.4-5.

C. A MILITARY SOLUTION FOR BRAZIL?

The defeat of the military regimes in Latin America after decades of coups and counter-coups was greatly achieved by conditions from the market place, and not only by the political establishment. This has resulted, in Argentina, in the humiliation of the armed forces by financial strangulation, and later, as a result of defeat in the South Atlantic conflict(Malvina-Falklands War). In Brazil, the military phenomena as an essential part of politics has weakened, but it is still present today. Evidence of this is offered in the current spate of coup rumors and reports in various Brazilian journals and newspapers published throughout the months of July and August of 1993.[117] Growing inflation has been invoked in the most recent rumors, reported by the New York Times on 27 July 1993. These were denied by the Navy Minister, Admiral

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[117]"Column Discusses Concerns About Possible Coup", (in Portuguese), Jornal Do Brazil, 4 July 1993 p 2,translated and reported in Foreign Broadcast Information Service(FBIS-LAT-93-133-A, 14 July 1993), p.1; "Retired Military Debate Coup Possibilities" ,(in Portuguese), Veja(Sao Paulo), 14 July 1993 pp.28-29, translated and reported in FBIS(FBIS-LAT-93-146, 2 August 1993), p.39; "Possible Involvement of Sarney in Coup Attempt Viewed", (in Portuguese), FOLHA DE SAO PAULO, 3 August 1993 Section 1 p.5, translated and reported in FBIS(FBIS-LAT-93-150, 6 August 1993), p.30.

Ivan Serpa. But then, coups seldom come from within the government, but are plotted by those wanted to get in.[118]

The latest evidence is indicating that something is happening within the ranks of the dissidents and the opposition sector in Brazil. The plans for a military coup bets on the failure of minister Fernando Henrique Cardoso's economic plan and follows with a campaign to smear President Itamar Franco's image."[119] According to the generals, the plan has a name for Itamar Franco's hypothetical replacement through an indirect election: Jose Sarney, a former president. An article in VEJA, on 14 July 1993 reads:

> "It seems that the veterans of the 1964 coup and AI (Institutional Act) No.5 have returned. They love talking about Peru's dictator, Alberto Fujimori. They venerate former president Castello Branco like a saint in a nativity scene."

These veterans are not feared yet, but they are a nuisance. There has been meetings in which two groups of the opposition were consulted and discussed the latest situation in Brazil: the Bandeiras(recently formed) and better known as pajama-clad dinosaurs , and the Guararapes(established 3

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118 "Overcoming the Failure Legacy" Latin American Regional Reports; Brazil Report, RB-93-07, 12 August 1993, p.7.

119 "Column discusses concerns about possible Coup", (in Portuguese), Journal Do Brazil,"Coluna do Castello", Rio de Janeiro 4 July 1993, translated and reported in FBIS(FBIS-LAT-93-133-A, 14 July 1993), p.1.

years ago).[120] The **Bandeiras** are in favor of a "Fujimori solution" to the Brazilian problems. The **Guararapes**, on the other hand , do not want to centralize power in one person's hand. For them the military regime would be the best thing. The suspicion that Sarney(Brazilian Democratic Movement Party-Amapa State), a former president and current senator, was invited to participate in a coup d'etat is being examined by government deputies and other senators. Even if these facts are a product of fictitious pretensions or merely signs of discontent, the possibility of a military takeover opens the door for military oriented actors and leaders to substantially change the political equation and look for new strategic solutions, including the nuclear option, to the domestic situation in Brazil. The military's point of view regarding the nuclear weapons program has followed guidelines based on principles of sovereignty and technological autonomy. As former Navy minister Admiral Maximiliano da Fonseca stated, during an interview in Rio de Janeiro on July 1993, after being asked if the project was close to be successful:

> "I would say that in the final phase, everything depended mostly on a political decision. And on money, which there was also not enough of. How to produce an

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[120] "Retired Military Debate Coup Possibilities",(in portuguese), VEJA Sao Paulo 14 July 1993, translated and reported in FBIS(FBIS-LAT-93-146, 2 August 1993), p.39.

> atomic bomb is no longer a secret. As far back as the early 1980's, through its autonomous program-what you called the parallel program-Brazil was mastering the technology for enriching uranium, thus joining the exclusive club of nations capable of transforming natural uranium into enriched uranium."[121]

This is the same minister of the Navy that made the statement that Brazil should drop an atomic bomb as a demonstration of power.

D. A NEW MISSION FOR THE MILITARY?

The decision taken by President Franco, at the end of 1993, to built a frontier surveillance system throughout Brazil's Amazon territory has a number of ostensible justifications: the war against drug trafficking and smuggling, the need to protect native peoples and natural resources, and the defense of national sovereignty. Following this decision new military ministers were appointed by promoting various Army generals.[122]

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[121] "Former Navy Minister Discusses Nuclear Bomb Production", (in portuguese), Interview in Rio de Janeiro July 1993, translated and reported in FBIS (FBIS-LAT-93-148-A, 4 August 1993), p.1.

[122] "Military Ministers Reaffirm Support for Democracy", in Portuguese, as transmitted by Rede Globo Television Rio de Janeiro 2200 GMT 9 Dec 1993, translated and reported by FBIS(FBIS-LAT-93-236, 10 December 1993), p.25.

It may also have something to do with internal pressure coming from the five military officers remaining in cabinet positions within the Franco's administration and their obsessive fear that, rightly or wrongly, outsiders have plans to intervene and develop some border areas. It seems that the *Conselho de Defensa Nacional* has won the argument that something needs to be done to protect a region that accounts for more than half of the national territory, including 11,000 km of frontier with seven countries. The military feel that control over the land, as stated by the Doctrine of National Security and Development, is essential to assert Brazilian sovereignty.

Franco's decision to build a high-tech surveillance and radar system known as **SIVAM** over the next eight years covering the entire Amazon region appears to be a political decision to maintain a stable civil-military relationship. The project overall implementation will cost between $600 million and $800 million and take five to eight years to complete.[123]

Judging from their behavior, civilian leaders seem to apparently concluded that the advantages of the civilian-

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[123]"Government Wants Amazon Countries to Join Security System", (in Portuguese), Jornal do Brazil 21 October 1993 p.13, translated and reported in FBIS(FBIS-LAT-93-210-A, p.2 November 1993), p.10.

military arrangement outweigh the liabilities because they continue to reinforce it through their supportive actions. It seems that it meets a certain psychological need in that it allows the civilians to play the game of politics with a greater degree of abandon or lack of concern with principle or national interests than would be the case otherwise. That is to say, the civilians know that, if they mess up, the military are there in the wings "ready to don the mantle of military messiah" and pull the acorns of national interest from the fire. Then, hopefully, after some adjustments here and there by naive military men, the civilians can return to the political gaming table and try their luck.

If this is indeed the case, then the question which will remain at the center of national politics for the near future is whether civilian leaders will be able to grant the military the function of political guardians without having them assume the role of overlords; whether there can be rescue operations and surgical strikes by military leaders without them assuming hegemony and authoritarian powers. Eventually, however, military and civilian leaders may jointly recognize the liabilities of perpetuating the military mystique and the pattern of behavior associated

with it and choose to rewrite the traditional script of military intervention.

The peaceful transition of power that followed the Collor de Mello fiasco tends to support the argument that the Brazilian civilian regime is here to stay. But even when the military has been relinquishing political control it has not, as David Fleischer noted in the "Pact of Elites," abandoned its self- defined core values. The broader problem facing the country is whether or not political institutions are sufficiently responsive and flexible to assimilate and respond to the societal demands that went unattended during the military regime or whether the political order established during the regime will survive largely intact and prosper in a democratic regime. The policy directions established during the military regime have changed sometimes modestly in the *Nova Republica*.[124] Further struggles and political and economic mistakes are testing how elastic and tolerant the military can be. An apparent resurgence of a strong military influence, at the high level of the national security and foreign policy decision-making process in Brazil, could have a catalyst effect in the development of nuclear weapons in Brazil. As

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[124] Graham and Wilson, The Political Economy of Brazil: Public Policies in an Era of Transition, p.281.

Brazil's Navy minister stated in 1984, when the military, while denying pursuit of the bomb, was making the case for keeping nuclear options open:

> "...We, the military, are not going after the bomb. With the development of nuclear research, however, one day the country will inevitably have the material necessary to build the bomb. It is a good thing to have that capacity. But just because we posses that capacity, manufacturing the bomb will make no sense because we do not intend to go to war with anyone."[125]

Recent military gains in the political arena of Brazil are strong indications of the immense influence that military leaders still maintain. With the support of president Itamar Franco, who chose to diminish the credibility of his Minister of Finance and virtual candidate for president of the republic, the military have guaranteed that their uniforms will be safe from the effects of an economic package that is going to tighten the belts of ordinary Brazilians. Whereas the other ministries will have to work hard to stick to the $22 billion in cuts promised by the president, the Army, Navy, and Air Force will keep their three strategic projects:the

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[125]Molander and Nichols, Who Will Stop the Bomb? A Premier on Nuclear Proliferation, p.77.

nuclear-powered submarine, the space program, and the Italian-Brazilian AMX fighter plane.[126]

The yearning by the military to enter deeply, once again, into the field of politics seems to have grown stronger in response to the absolute political vacuum that accompanied the announcement of the Finance Minister's economic package.

The officer class is now taking for granted that civilian and military personnel will be separated in the constitutional revision currently underway, thus making possible to approve separate pay increases. the military adviser to the Brazilian Congress, Commander Sergio Porto da Luz, says it is "practically guaranteed" that the military will receive a 186% pay increase.[127] This will represent another hard blow at Finance Minister Fernando Henrique Cardoso's policy of extreme austerity.

With or without a clear mission, the military strongly influence the Brazilian political system. In the present situation of economic and political crises, various elements in the military sector had openly defied civilian rulers. Under these conditions, a military resurgence or an increased

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[126]"Recent Military Gains in political Arena Viewed,"(in Portuguese), Sao Paulo ISTOE, translated and reported in Foreign Broadcast Information Service(FBIS-LAT-94-012, 19 January 1994), pp.46-48.

[127] Ibid,p.47.

role of the military in the political structure of Brazilian life can be expected.

IX. INFLUENCE OF THE NON-PROLIFERATION REGIMES

Leonard S. Spector wrote in 1992: "It is true that the prodigal proliferant states are returning to the non-nuclear family- but how will we know if they have truly repented?" Over the past two years, four states with histories of nuclear weapons-related activities-Argentina, Brazil, North Korea, and South Africa- have take formal steps to renounce nuclear arms. But the past two years have also shown that even a country, such as Iraq, that has signed the NPT and accepted its safeguards can pursue nuclear weapons in secret, and, given enough time, possibly present the world with a deadly, destabilizing fait accompli.

With the NPT subject to renewal in 1995, and expectations for slowing proliferation now so high, events involving the nuclear sector in developing countries will be critical for global non-proliferation efforts.

Any state that hopes to produce nuclear weapons, secretly or not, must first overcome two technical challenges.[128] First, and most difficult, it must manufacture or purchase enough weapons-grade uranium or

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[128] Leonard S. Spector, "Repentant Nuclear Proliferants", in Foreign Policy, Number 88, Fall 1992, pp.21-24.

plutonium to build the chain-reacting core used in nuclear explosives. Manufacturing either of those materials is an extremely difficult task, one that typically takes non-industrialized countries 10 years or more to master, during which time they must build and operate a chain of complex nuclear facilities. Second, a would-be nuclear power must master the design of the nuclear device and then manufacture and test all of its non-nuclear components. A full-fledge nuclear detonation would not be needed, however to be confident of its capabilities and safety procedures it is recommended.

Would be nuclear powers are also constrained by the non-proliferation regime, whose cornerstone is the NPT. Under the 1968 treaty, countries without nuclear weapons pledge not to manufacture or receive them and agree to accept inspections of all their peaceful nuclear activities by the Vienna-based IAEA.[129]

For their part, the nuclear weapon states are permitted to keep their arsenals and are exempted from IAEA inspections, but they are bound to negotiate "in good faith" toward nuclear disarmament. With the accession of China into the treaty in March 1992, and that of France in

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[129] Leonard S. Spector,"Proliferation:The Silent Spread" in Foreign Policy, Number 58, Spring 1985, p.55.

August, all five of the declared nuclear weapons countries-China, France, Great Britain, Russia, and the U.S.-and 144 other states have joined the NPT.

The most important challenge for the non-proliferation regime is to guarantee that the newly reformed states-Argentina, Brazil, North Korea, South Africa, and the Soviet successor states- place all relevant nuclear materials under international monitoring. That must be done with great care, or those countries could retain a cache of material and resume covert nuclear weapons efforts. The task is likely to be enormously difficult because each of the countries has pursued a range of nuclear activities and clandestinely acquired a range of nuclear equipment and material. But if the difficult cannot be overcome, and if a country breaks out of NPT safeguards, then the regime itself could break down, raising the prospects of new nuclear arm races around the world.[130] These fears can be added to political concerns generated by the recent events in North Korea. The North Koreans abandoned the NPT regime's guidelines for a period of time only to recently agree to return within regime's standards. It appears that their

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[130] Leonard S. Spector,"Repentant Nuclear Proliferants" in Foreign Policy, Number 88, Fall 1992, p.24.

compliance with non-proliferation requirements is questionable. This example has not emulated by any nation in particular but criticized by most of the nations signatory to the NPT.

A. NUCLEAR CONFIDENCE BUILDING AND THE GUADALAJARA AGREEMENT

In July, 1991, the Argentine and Brazilian foreign ministers signed and agreement in Guadalajara, Mexico, implementing the 1990 Foz do Iguazu Declaration by establishing the Joint System for Accounting and Control of Nuclear Materials(SCCC) and the Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials (ABACC). ABACC is composed of a Commission of four members and a Secretariat with Headquarters in Rio de Janeiro.

The principal responsibility of ABACC will be to administer the SCCC, established by the two nations for the purpose of verifying that their nuclear material are not diverted to nuclear weapons or nuclear explosive devices. ABACC is vested with the responsibility "to conduct the inspections and other procedures stipulated for the application of the SCCC" (Article VIII, Paragraph B). The four members of ABACC's Commission will prepare a list of inspectors from those suggested by the two

governments, and the Secretariat will select which inspectors are to carry out the individual inspections(with the stipulation that each inspection include and inspector who is a citizen from the other nation). Any abnormality detected as a result of inspections, or assessment of national records, are to be reported by the Secretariat to the Commission, which may then call upon the offending party to correct the situation. Serious non-compliance by either party enables the other party to abrogate the agreement and to notify the Secretary General of the United Nations and of the Organization of American States(OAS).[131] Clearly, Argentina and Brazil, in breaking new grounds to open their nuclear programs to one another and to accept comprehensive IAEA safeguards to verify the arrangement, are seeking to demonstrate that they should be accorded the same respect and recognition as other states that have undertaken solemn non-proliferation commitment. The Agreement is an impressive achievement but its ultimate success requires the following:[132]

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[131] John R. Redick, "Argentina and Brazil's Arrangement for Mutual Inspections and IAEA Safeguards", University of Virginia, in NPT at the Crossroads, Nuclear Control Institute, February 1992, p.2.

[132] Ibid. p.6.

(1) ABACC must develop quickly to assume its responsibilities. This means that Argentina and Brazil must accord ABACC strong political support, and provide it adequate resources.

(2) The IAEA must, in the development of subsidiary arrangements, remain steadfast to the principle that all Argentine and Brazilian nuclear facilities are covered and subject to IAEA inspections.

(3) The agreement should be understood as an innovative Argentine-Brazilian initiative establishing an arrangement analogous to the EURATOM-IAEA agreement.

(4) The Four-Party Agreement and the ABACC should receive the strong support, praise, and encouragement of the international community as it evolves. The success of the agreement is important, not only for the peace and security of Latin America, but as a model for other more troubled regions(North-South Korea, India-Pakistan,etc.).

(5) Attention should be given in the months ahead to the Tlatelolco Treaty, which Argentina and Brazil have pledged to permit to come into force for their territories upon conclusion of the Four-Party Agreement, and in the context of "updating and improving its text." The types of changes in Tlatelolco proposed by Argentina and Brazil, particularly regarding Article 16 on Special Inspections,

should be closely monitored. This "inspection by demand" article has long been considered a unique and potentially important feature of the Tlatelolco Treaty. The impact of this amendment is to remove OPANAL from undertaking special inspections, while clarifying(somewhat) the IAEA's authority to conduct such inspections. While the amendments appear to confirms the IAEA's sole responsibility for special inspections, the language suggests that such action can only be triggered by a request to the IAEA of a Tlatelolco party and the concurrence of OPANAl"s Council. (It's unclear whether, under the amended article, the IAEA would be interpreted as having freedom to initiate such inspections on its own. This issue is moot for most Tlatelolco members which are also covered under the NPT, but of conceivable importance for non-NPT nations:Argentina, Brazil, Chile and Cuba.)[133] Tlatelolco may assume greater significance with the recent Cuban indication of willingness to adhere, following full entry-into-force action by Argentina, Brazil, and Chile.

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[133] John R. Redick,"Nuclear Confidence Building in Latin America", University of Virginia 1993. A paper prepared for Verification Report 1993, Yearbook on Arms Control and Environmental Agreements, published by Verification Technology Information Centre(VERTIC), London, United Kingdom, January 1993, p.21.

(6) Finally the ABACC should be extremely careful not to give favorable treatment to any state in the Agreement.

In addition, the IAEA as a mechanism of prevention, also encounters political and financial difficulties because of its dual mandate. The IAEA funded through the United Nations. The IAEA budget is divided between nuclear energy development programs and the maintenance of safe-guards. Hans Blix, like all the past IAEA Director General, faces political pressure from nations desiring IAEA help in developing their nuclear programs. Many nations want to see greater resources dedicated to building nuclear power plants, rather than being "wasted" in safeguards. The 1988 budget of the IAEA was $155 million with about $63 million dedicated to the Department of Safeguards.[134] Most of the safeguards budget is spent on safeguards in nations not considered to be a nuclear weapons proliferation threat. While some nations posing the greatest threat to nuclear proliferation are often not being inspected at all by the IAEA.

A third are of weakness for IAEA safeguards results from the overlap in utility of nuclear facilities for both peaceful and military applications. The IAEA must schedule its inspections in advance, allowing any

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[134] Ibid, p.42.

discrepancies to be hidden. For example, a gaseous diffusion enrichment facility(like the Pilcaniyeu plant in Argentina) can produce 20% enriched uranium for peaceful and military purposes. Increased enrichment levels can be accomplished in the same facility through two methods called *stretching* and *recycling*.[135] It is difficult for the IAEA to monitor such a facility, especially when improper activities can be stopped before the regularly scheduled visits by the IAEA. The host nation can plan to produce only 20% enriched uranium during IAEA scheduled visits.

The predictability of inspections is a major deficiency of the current IAEA safeguards. The advance warning of upcoming inspections allows time to correct any safeguards violations. Safeguards could be strengthened by random inspections. Nations with suspected nuclear weapons research facilities should be the ones having frequent inspections.

But further evidence of significant non-proliferation gains by Argentina and Brazil were recorded in the early months of 1991 and 1992 including a disavowal of peaceful nuclear explosives (PNE's), progress toward strict

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[135] For detailed information on *stretching* and *recycling* in Argentina and Brazil see Albright, "Bomb Potential for South America," pp.17-18.

domestic nuclear export controls, and restraint in development and export of missiles. The joint position on PNE's is a dramatic reversal of a consistent position of both nations articulated since the 1960's. As regards nuclear export legislation, Argentina has already initiated important changes by presidential decree, with further implementing legislation currently before the congress. Similar far reaching legislation has been introduced, and is currently pending before the Brazilian congress. If fully implemented, this domestic legislation would appear to make the Argentine and Brazilian nuclear export procedures commensurable with the Nuclear Supplier Group guidelines.[136]

The significant gains toward a complete non-proliferation status that occurred between 1990 and 1992 under the civilian administration of Argentine President, Carlos Menem, and former president, Fernando Collor de Mello were a result of several factors:

(1) The enormous economic challenges confronting Argentina and Brazil (including the immense debt burden) encouraged the leadership in both nations to look critically at wasteful, but historically sacrosanct,

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[136] Ibid. Pages pp.1-3.

government programs. In such a climate, the civil nuclear program became a clear target for close scrutiny, and the economic penalties both nations would encounter by pursuing a nuclear weapons option,became more apparent.

(2) The assumption of leadership by civilian presidents, the reassertion of congressional involvement in policy making, and the concurrent lessening of the influence of the military, were important factors in both nations. In Brazil this process has been gradual and is far from complete, but nonetheless represents a distinct break from the past.

(3) Pressure from the nuclear supplier states, especially Germany, contributed significantly to Argentina and Brazil's nuclear forbearance. Germany's decision to require within five years all nations with which it has significant nuclear relationship to adopt full scope safeguards, was a pivotal factor in convincing Argentine and Brazilian policy makers to reverse course on nuclear policy.

(4) Mutual suspicion- or to put it more positively- a shared desire by Argentina and Brazil to build a climate of trust by making their respective nuclear programs transparent, contributed to the development of the bilateral inspection agreement. Less obvious is the

candid admission by both nations civilian leaders that the bilateral inspection arrangement provided them a non-confrontational means to restrain their own military.

(5) Argentine-Brazilian nuclear reapproachment occurred within the broader context of Southern Cone economic cooperation. This process was initiated over two decades ago with the resolution of river and boundary problems in the Rio de La Plata area, and has the goal of elimination of all tariffs and the creation of MERCOSUR, the "Common Market of the South", by 1995.

The gradual coordination of both nations economies has helped create both a psychological climate and political momentum for nuclear cooperation.

(6) Presidential leadership both in Argentina and Brazil, as well as in the U.S. was (and is) a very important factor. Strong civilian leaders in both nations helped overcome bureaucratic and ideological resistance in the military and nuclear energy commissions. Quiet diplomacy at he highest levels of the Bush administration reinforce the commitment to the leadership in both South American countries.

(7) Evidence of restraint by the nuclear weapon states was also important to creating an international

climate for Argentina and Brazil's non-proliferation initiatives.

The weaknesses of the IAEA Safeguards are, on the other hand, more evident and encompassing than the ones involving the implementation of the Guadalajara accord. The weaknesses of IAEA safeguards result primarily because the IAEA needs to have the cooperation of the host nation. If the host nations desire to deceive or keep information hidden from the IAEA, it will most likely be successful. Archelaus Turrentine, former Assistant Director at the U.S. Arms Control and Disarmament Agency, stated that the IAEA inspects only declared nuclear facilities and does not try to uncover secret facilities.[137] It is difficult for the IAEA to force a nation to reveal deeply held secrets regarding their nuclear weapons research.

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[137]Turrentine, "Lessons of the IAEA Safeguards," p.50.

X. THE FUTURE OF BRAZIL'S NUCLEAR WEAPONS PROGRAM

The road to regional hegemony is perceived as difficult and demanding but Brazilians believe that they have a special destiny.[138] Brazil's determination to maintain an ambiguous impression to keep open both its nuclear power and nuclear weapons options in spite of increasing international pressure is closely related to the underlying political, national security, and economic motivations for keeping the programs alive (or at least projecting the illusion that their nuclear option is still a viable alternative).

A list of the arguments in favor of nuclear technology's development in Brazil that have been mentioned in the past can be used to explain the factors being considered at the present time. **Table VIII** summarizes the potential costs of abandoning the Nuclear weapons development in Brazil.

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[138] David J. Myers,"Brazil: Reluctant Pursuit of the Nuclear Option",in Orbis No. 27, Winter 1984, p.881.

TABLE VIII
POTENTIAL COST OF ABANDONING NUCLEAR WEAPONS DEVELOPMENT IN BRAZIL

a. Perceived loss of national autonomy and sovereignty, making the government a target for nationalistic opposition movements.

b. Additional confrontation between civilian government and the military(increased possibility of a coup?). Military resurgence.

c. Forfeiture of a potentially lucrative export market in nuclear and ballistic missile technology.

Brazil did not want to adhere to the strict prohibitions concerning the development of nuclear technologies. This approach is still considered by the military component of Brazilian society but the demilitarization process currently underway in Brazilian politics has diminished the influence that elements of the armed forces had in the formulation of domestic and foreign policies in Brazil. Brazil perceived the nuclear alternative as a contributing factor in its dream of becoming a major regional and global power. This idea is still supported by the majority of influential members of the Brazilian government but in a much broader context; technological autonomy. The nuclear option was understood

to be in compliance with Brazil developmental "grand strategy" of diversification of export markets, sources of energy, sources of technology and sources of foreign investment.

This past twenty years have taught Brazilians that a compromising and moderate position in nuclear matters can mitigate the negative effects of pursuing what for the majority of nations in the international community is a controversial option. Potential benefits can be obtained by abandoning Nuclear weapons development. **Table IX** summarizes the most significant ones.

TABLE IX
POTENTIAL BENEFITS OF ABANDONING NUCLEAR WEAPONS DEVELOPMENT IN ARGENTINA AND BRAZIL

a. Receive economic rewards from the international community, such as:
   - The Enterprise of the Americas initiative
   - Access to technology and investment
   - Debt restructuring and increased availability of new loans(Brady Plan)
b. Complete the process of regional economic integration begun in the Southern Cone Common Market(MERCOSUR).
c. Establish civilian supremacy over the armed forces in an area where past military license existed.
d. Build an advance technological base and a more prosperous economy with the potential ability to renew nuclear weapons research in the near future, if the political situation changes.
e. Adherence to the consensus of powerful international community interest groups.

Finally the concept of prestige, synonymous with status, which in the Brazilian context is closely related to the grandeza(greatness)[139] seemed like a reasonable goal in the days of the economic "miracle". But the rude awakening experienced by the Brazilian "dreamers" that predicted a regional hegemonic power by the turn of the century has created a cautious and pragmatic approach to foreign policy and a better understanding of the dynamics operating in the international system. The nuclear Bomb is as influential in the international scene as it is having the potential to develop such a weapon available on a short period of time. Brazil does not have to build the Bomb, just "play" with that possibility. Its nuclear weapons potential is enforced by an articulated and highly structured defense arms industry, nuclear technology expertise acquired by long time experience with nuclear power reactors and associated technologies, and the availability of foreign capital(Germany, France, Japan) that can be injected to the economy with no immediate repercussion in the domestic economic agenda.

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[139] Scott D. Tollefson, Brazilian Arms Transfer, Ballistic Missiles, and Foreign Policy: The Search for Autonomy, a dissertation submitted to The John Hopkins University, Baltimore: Maryland, 1991. Ch.3, p.125.

A. BRAZIL'S NATIONAL SECURITY AND FOREIGN POLICY INTERESTS IN THE 90s

The security interests of Brazil are facing a time of opportunity and going through a period of transition in this decade. This process can be extended into the early years of the 21st century. Some Brazilian foreign policy analysts and many economists say that the security interest of Brazil would be best served by expanded cooperation with the United States.[140] Changes in the Brazilian definition of the means for securing its national security makes possible a new relationship with the U.S.. The traditional binomium *Seguranca e Desenvolvimento*, or security and development has slowly evolved into a broader and more inclusive term in order to describe the Brazilian national security concept in a better way.

Whereas under the military government the focus of Brazilian security policy was on providing the internal stability as a precondition of domestic growth, Brazilian foreign policy and its security policy component now appears to be outward looking. Central to security policy is the acquisition of technology. Before a Cabinet

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[140] Patrice Franko-Jones, The Brazilian Defense Industry Boulder: Colorado, Westview Press 1992, pp.206-209.

meeting of 1990, President Collor de Mello noted that "to become a modern, first world nation, Brazil must catch up with technological progress."[141] The Secretary for Strategic Affairs Leone Ramos echoed this sentiment in saying that "the Bomb is unnecessary because in the 21st Century **technology** will be the chief mean of asserting National power... A country will be classified as developed or underdeveloped on the basis of whether it absorbs technology or controls it."[142] This emphasis on technology is not contradictory to the past military policy of emphasizing the economic bases; however, achieving this new goal requires a different strategy. Brazil has learned that it will never catch up in isolation from the industrialized nations. It, therefore, must open further to the international system to acquire, develop, and finally produce the latest technology. But the terms of acquisition from industrialized countries demand assurances and responsible international behavior. Foreign Minister Francisco Rezek contends that the "Third World minded" foreign policy has been abandoned because

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[141] "President Collor Speech to Congress," (in Portuguese),first appearing on Brazilian television Rede Globo Rio de Janeiro, December 21, 1990. Translated and reported in FBIS.(FBIS-LAT-90-247 December 24, 1990. p.30.

[142] Jornal do Brazil, December 18,1990, p.13.

its rethoric has proved to be ineffective. Brazil's plan during the government of Collor de Mello was to sit at the table with the First World countries to work and "to participate in the center of the international decision making."[143] There are indications of Brazilian willingness to make concessions in order to receive technology. Brazil and Argentina achieved dramatic progress toward a complete non-proliferation status in 1992. By signing the mutual inspection agreement of December 13, 1991 the new Argentine-Brazilian Agency for the Accounting and Control of Nuclear Materials(ABACC) and the IAEA have agreed about the applications of full scope safeguards that are currently pending before the legislature on both nations.[144] In addition to these important compromises, former President Collor's action of filling the Cachimbo hole for nuclear testing was a dramatic statement about his nation's new commitment to greater transparency and accountability in highly technological and sensitive military programs. Foreign Minister Rezek showed a

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[143] "Foreign Minister comments on foreign policy," (in Portuguese),first published in Folha de Sao Paulo, February 17 1991, translated and reported in FBIS(FBIS-LAT-91-034, February 20 1991), p.12.

[144] John R. Redick,"Nuclear Confidence Building in Latin America", pp.2-3.

certain willingness to change course- a careful openness to pressure from the U.S. When asked whether U.S. pressure would affect the Brazilian Nuclear Submarine program Rezek, after first defending the consistency of the program with the argument for the peaceful use of nuclear energy, said that:

> "If the United States Government- whose thorough understanding of Brazilian projects is important for the development of our technology-"has a quarrel" with the building of a nuclear powered submarine, we will have to negotiate and perhaps give up the project... depending on the cost-benefit relationship. We must analyze, however, whether to insist on building the submarine against the will of a country that can transfer high technology to us at a reasonable prices... I believe that we will benefit more from other aspects of high technology. I wonder whether a specific method of moving a submarine justifies the renunciation of other types of technological assistance that we hope to receive in the short term".[145]

Of course it is not surprising that the Minister of the Navy, to whom the acquisition of submarine technology is critical, publicly disagreed with Rezek's position the following day. What was important was the Collor administration's position, and ultimately the position

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[145] "Brazilian Submarine program under review",(in Portuguese) first appearing in O Estado de Sao Paulo, March 3 1991, translated and reported in FBIS(FBIS-LAT-91-045, March 7 1991), p.8.

assumed by the civilian leadership, to take the military on and establish the environment in which certain military programs might have to be sacrificed in order to achieve the greater policy goal of technological transfer and ultimately technological autonomy.

But several aspects of the Brazilian national security and foreign policy formulation appear to be changing in recent months. First, the political team of Collor de Mello has fragmented under the present administration and lacks the dynamic and decisive leadership that the former president provided. The effective and well-respected civilian leadership is no longer counterbalancing the authoritarian military sector and their interests. Second, with the assistance of the German government and industrial sector the Brazilian Navy has started building the first three units of what, by the year 2000, will be Brazil's first fleet of nuclear submarines. The submarines will initially be diesel powered, but are being constructed to specification that will allow them to be converted to nuclear power later in the decade when the nuclear propulsion systems under development at Ipero(Sao Paulo) and the Institute for Nuclear Energy and Research (IPEN) in Sao Paulo are

completed.[146] Third, Brazil is finding ways to finance its nuclear programs. On July 9, 1992 Brazil and Germany agreed upon a new finance package that will allow for construction to resume at the Angra-2 nuclear power plant. KFW, the official German finance agency for development projects, will release $850 million. This amount includes $580 million in funds originally agreed upon in 1975 for both Angra-1 and 2, now allocated solely for Angra-2. Work on site will carry out jointly by German and Brazilian firms. The Cachimbo hole, even when it has been filled up and placed in a non operational status, still has several facilities and heavy machinery that could be placed in commission in a short period of time. In addition to these recent decisions and political maneuvers, Brazil still has not signed the Nuclear Proliferation Treaty (NPT), and the Safeguards Agreement for the Mutual Inspection of nuclear facilities with Argentina has not been ratified yet by the Brazilian Congress. Full adherence to the Tlatelolco Treaty has not been acknowledged by the government of new President

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[146] "Nuclear Related trade and Cooperation Developments", Eye on Supply, Emerging Nuclear Suppliers Project, Monterey, CA: Monterey Institute of International Studies,(Number 8, Winter 1993), p.5.

Itamar Franco. On December 1992, the Brazilian Nuclear Energy Association(ABEN) urged President Franco not to ratify the agreement between Argentina, Brazil, and the IAEA because it will allow for inspection of the Brazilian military nuclear program. ABEN claimed the agreement would be harmful to Brazilian national sovereignty.[147] Other legislative elements in Brazilian political society and powerful interest groups are now sharing this point of view. Their influence will play a key role for the future of any nuclear ambitions of Brazilian policy makers.

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[147] "Nuclear Related Trade and Cooperation Developments" Eye on Supply, Emerging Nuclear Suppliers Project, Monterey: CA, Monterey Institute of International Studies, (Number 9, Fall 1993), p.1.

XII. CONCLUSIONS

Brazilian current strategy in matters concerning nuclear weapon's technology seem to be summarized by the former Foreign Minister Antonio Azeredo da Silveira who in 1990 trenchantly observed:

> "During the Cold War, a rigid alignment with the leader of the Western Bloc was required of the nations of the developing world that shared the basic values of the West... These realities no longer apply...(and) an emergent power with a wide range of interests in many fields cannot allow rigid alignments, rooted in the past, to limit her actions in the world stage."[148]

The military influence in Brazil's political arena appears to be increasing as the economic situation narrows the viable alternatives to find a solution to the Brazilian socio-economical crisis and corruption scandals weaken the civilian leadership. If in fact a military resurgence is to be experienced in Brazil's near future, then the possibilities of a fully implemented and functional nuclear weapons program, reinforcing nationalistic pride and regional military superiority, could become a reality.

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[148] William Perry and Sheila Kern. "The Brazilian Nuclear Program In a Foreign Policy Context," in Comparative Strategy, (Volume 1, Number 1\2 1978), p.56.

A new "World Order", with new political, ideological, economic, and social challenges in the context of a new international polity, is affecting the intellectual and political sector of all civilized societies. These new events and different political dynamics are now changing old concepts of national security and reinforcing nationalistic concerns involved in the formulation of a coherent foreign policy. Brazil is no exception. Issues of nuclear proliferation and technological autonomy are here to stay, especially in developing countries. Geopolitical solutions to international concerns are as good as the commitment of the parties involved to let the safeguard mechanisms of the international community verify inter-regional or bilateral arrangements. Under these conditions the ABACC could prove to be a reliable source of nuclear control and verification of safety guidelines and a model to follow for other nations outside the NPT. But, as discussed previously, the process is structurally complicated and requires careful implementation. IAEA and other mechanism of non-proliferation are effective but not infallible. A veiled nuclear program could escape detailed international scrutiny.

The future of the Brazilian weapons program is unclear; intentions are hard to understand. But what is

unclouded is that Brazil will continue "playing" its nuclear option without compromising the position of the government toward one extreme or the other. To completely renounce the nuclear option is not a recommended alternative because of geopolitical concerns (security), strong military opposition, it opposes issues of territorial control included in the Doctrine of National Security and Development, it disregards international "prestige" considerations, and more importantly its negative implication to future efforts of achieving technological autonomy. In addition, economic constraints can be avoided. Foreign financial support to continue the development of nuclear programs is available through old creditors and new clients. To openly embrace a nuclear weapons program and begin a race toward the development of a nuclear bomb do not offer a better solution because immediate economic considerations, international pressures (possibility of sanctions) imposed by the international community, and its damaging effect to regional cooperation and integration efforts. The Brazilian understanding of the options available to their policy-makers will continue to be a matter of controversy. Brazil appears to be "playing the nuclear game" one day at a time, and no one knows the aces left in its hand. The

illusion of still having some aces left keep the player on the table, in the center of the game. Brazil understands this status.

The international implications arising from this behavior requires from the world leaders, and the principal supporters of disarmament and non-proliferation efforts to understand power politics and strategic intentions within the context of Brazilian foreign policy. Prudent and cautious behavior while non-proliferation efforts and negotiations continue are necessary elements to reenforce the trust between Brazilian authorities and the members of the International community.

APPENDIX A

THE RIGHT OF THE UNITED STATES TO TRANSPORT NUCLEAR WEAPONS IN AND THROUGH TERRITORIES WITHIN THE ZONE OF APPLICATION OF THE TREATY OF TLATELOLCO

The United States insisted on the following interpretation of the transit rights under the Treaty of Tlatelolco:

> The proposed treaty should impose no prohibition that would restrict the freedom of transit [of nuclear weapons] within the Western Hemisphere. The U.S. policy on freedom of transit is based on our national security needs and the vital security needs of the Hemisphere.[149]

The United States faced considerable opposition on the transit issue. Mexico stated that this interpretation undermined the entire purpose of the treaty. However, the firm U.S. position ensured that the final compromise allowed each nation in Latin America the "discretion" to permit the transit of atomic materials through its territory. The U.S. policy of "neither confirming or denying" the presence of nuclear weapons on any of its ships or aircraft traveling through Latin America has continued. Some opposition to U.S. Navy ship visits exists in Latin America, but, it has been far less vocal than in other parts of the world. There has not been any confrontation in Latin America comparable to New Zealand's 1985 decision to refuse ship visits by nuclear-capable or nuclear-powered ships.[150]

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[149]U.S. Senate, Committee on Foreign Relations, Additional Protocol I To The Treaty For The Prohibition Of Nuclear Weapons In Latin America (95th Congress, 2nd Session, 15 August 1978), p.47.

[150]Jacob Bercovitch, ANZUS in Crisis: Alliance Management in International Affairs (New York: St. Martin Press, 1988), pp.1-29.

APPENDIX B

BRAZIL - GOVERNMENT	
Type of Government	Federal Republic Constitution-October 5 1988)
Government Leaders	PRESIDENT- Itamar C. Franco FINANCE MINISTER- Henrique Cardoso
Major Political Parties	Brazilian Democratic Movement Party (PMDB), Liberal Front Party (PFL), Workers Party (PT), Brazilian Labor Party (PTB), and Democratic Workers Party (PDT)

BRAZIL - GENERAL PROFILE	
Area	3,286,473 sq. miles
Population 1992	150,670,000
Population Growth	2.3%
Population Density	47/ sq. mile
Capital City	Brazilia
Local Divisions	26 states
Size of the Military	320,000
Defense 1988	0.3% of GNP
Languages	Portuguese(official), English, German, Italian
Religion	Roman Catholic (89%)
Literacy	76%
Life expectancy	64 Male, 69 Female
Infant Mortality 1987	67/1000 births

BRAZIL - FINANCE	
Monetary Unit	Cruzeiro
GNP 1991 (in millions $)	$375,698
GNP per Capita 1991	$2,534
Imports 1991	$21 million
Industries	Steel, autos, ships, appliances, petrochemicals,
Minerals	Chromium, iron, manganese, diamonds, gold, nickel, tin, bauxite, oil, gem stones
Oil Reserves 1987	2.3 billions of barrels

Source: The World Almanac and Book of Facts 1992, Pharos Books, Scripps Howard Company, New York: N.Y.,

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